NOVEMBER 1909

MOTOR BOATING

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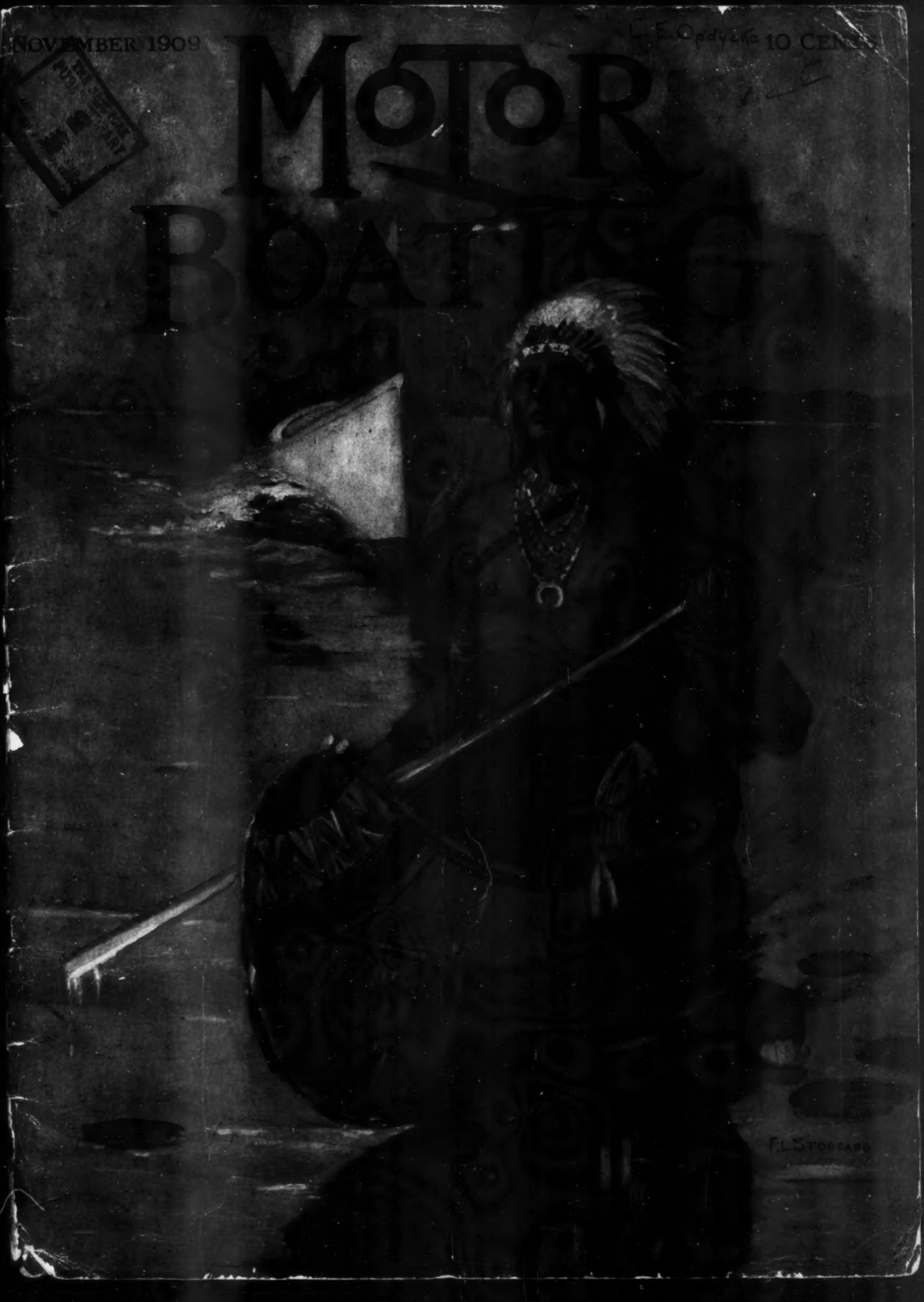

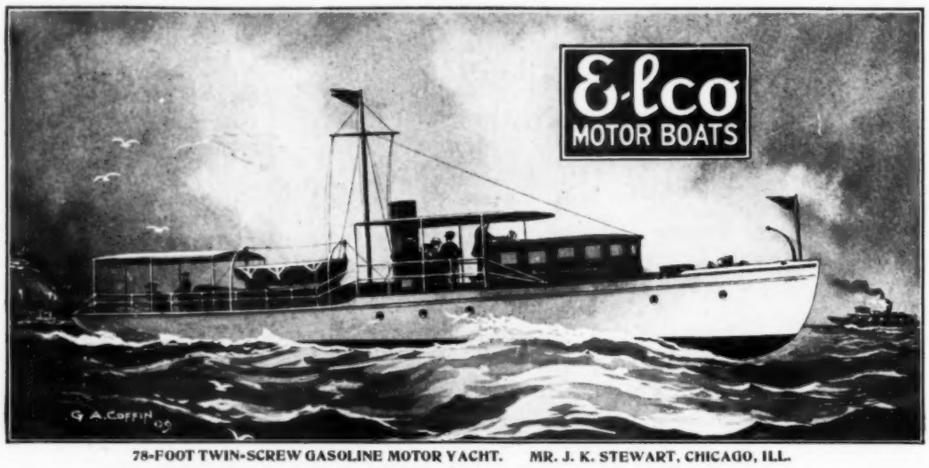

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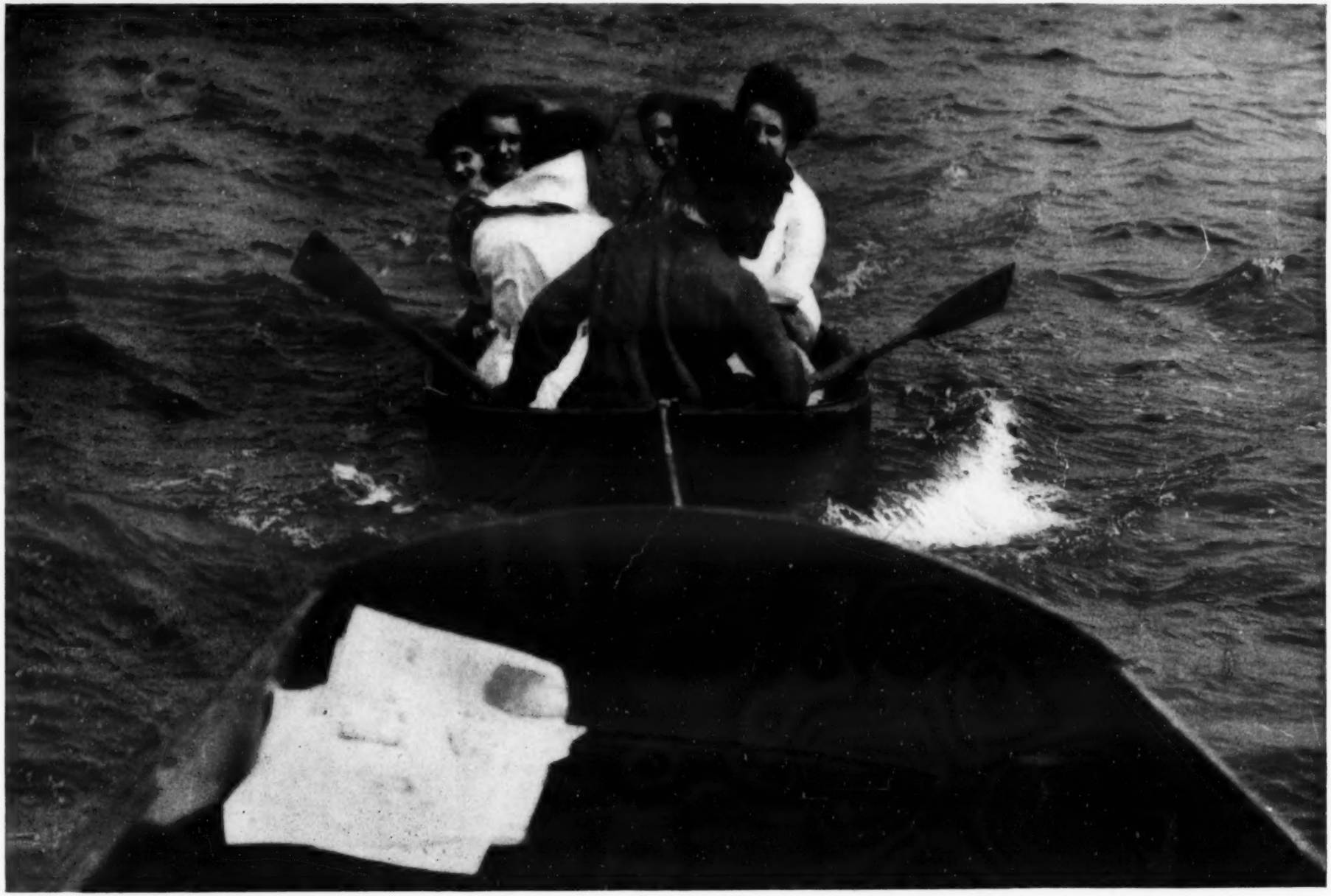


Getting a tow.

MOTOR BOATING

THE NATIONAL MAGAZINE OF MOTOR BOATING

Cruising In British Columbia Waters.

Being the Account of an Unexpected Trip By One Who Was Kidnapped. From Vancouver, B. C., Northwest Through the Strait of Georgia.

By Frank M. Foulser.

HOW did it happen? Well, I was kidnapped—that's all. I had no more intention of going on that cruise than you have at this minute. It was in Vancouver, B. C. I was there on business—chasing down the waterfront in search of a man whose ear it was necessary to gain. There was a neat, 40-foot, stock-pattern, trunk cabin Racine tied up to one of the wharves loading on the big, red, Imperial-gallon cans of gasoline. That's something, by the way, that you want to remember when you cruise in English waters. It takes six of Uncle Samuel's gallons to fill what Johnny Bull calls a five-gallon can. Furthermore, you should bear in mind that the smallest price you will be taxed for gasoline on the British Columbia side is 25 cents and from that up to 40 cents, while in Seattle the price runs from 15 to 22 cents per gallon. So even the advantage in size of the Imperial measure does not equalize the difference in the cost.

Now the minute I sighted that boat, which had a certain familiar look, I knew that I had no business dallying along the danger reefs of temptation. Every business instinct bristled with a warning culled from past experience. But the ability to appreciate a beautiful boat or yacht is "na a habeet, but a guft," like my friend Lauder's explanation of Sandy's enjoyment of a "wee drappy." So defiantly I sauntered down "just to see the boys start out."

A moment later the familiar head of the skipper of Philistina, set off by the disreputable habiliments which he loves to don when once clear of the office and safe from the reproaches of his better half, precipitated itself into the cockpit from the cabin. He caught sight of me among the group of interested spectators.

"Well, don't stand there all day. Hurry up and throw your dunnage down. Then stand by the bow line and let's get out of here."

"But where are you going?" I asked, feeling my resolution beginning to waver.

"Now see here," floated back the reply, "that's none of your blankety-blank business. You've sailed with me times enough to know better than to ask such a question."

I made a hasty mental calculation. "Oh, well," said I, yielding, "if that's the way you feel about it, I'll be ready to start in fifteen minutes."

The way in which business was despatched in the city of Vancouver during the next quarter of an hour caused some of those staid Britishers to open their mouths and gasp. Meanwhile the rest of the crew of Philistina finished the loading of stores, obtained the necessary papers, and worked the "ship" out of the tortuous channel which leads to Coal Harbor and the anchorage of the Royal Vancouver Yacht Club. By the time they had the Canadian Pacific wharf abeam, I was on the end of it with such duds as I had been able to annex in my whirlwind passage through the business section.

So we started—five of us, and Charley, the Japanese cook. There was "Fluff de Ruff," so named because of his head, which had been shaven as a preliminary precaution, giving him a convict-like appearance; then there was Larry the Duke, incog., Uncle Fred from Georgia, who, in spite of his years, enjoyed this his first motor boat cruise as keenly as any of the boys; and the captain, Miller Freeman, owner of Philistina, "out of Seattle, sir, and as good a ship as ever ploughed the main, sir." The writer was taken for ballast. It was 1:45 P. M. on Aug. 9th when we cleared from the C. P. R. dock, caught the first of the ebb tide out through the narrow channel which guards the main harbor of Vancouver, and laid a course SW. by W. ¼ W. out by Point Atkinson light.

When Charley put the kettle on we all had tea.

It is surprising how much stuff we stowed away inside that boat. By actual weight, a ton or more of supplies was distributed by the crew during that first hour in the numerous lockers, drawers and handy places, which can be found on any of the Racine cruisers. We carried as an extra precaution, in addition to our regular 75-pound anchor, a 150-pound hook with about 50 fathom of

The morning bath en route.

First lessons in the art of navigation.

new, inch and a half, 4-strand, soft-laid cable and 50 feet of chain. It pays to have plenty of good ground tackle.

There was a gentle southwesterly breeze blowing, enough to ruffle the sea just a trifle. The barometer read 29.8, but there was considerable smoke in the atmosphere. As we cleared the Narrows, which by the way, has a current heavy enough to stop any 8-mile launch that tries to breast it at full flow, we could see the outgoing tide following the shore to starboard in a broad ribbon-like swath of blue. The captain worked his way over and soon the difference in speed could be noted by comparison with the shore line, and the pieces of drift, of which there was a large quantity afloat.

It was about 2:45 when we passed Point Atkinson, that guards the southerly entrance of Howe's Sound and constitutes one of the boundary points of English Bay. That showed we were logging about 8 miles an hour, which is a trifle better than what Philistina with her 16 h. p. Racine can ordinarily do, as she is very heavy and beamy. A long line of flotsam, heading a turbulant muddy current directly across our bow, showed that the water had just commenced to flow out of Howe Sound. By altering our course a trifle to port, the skipper caught its favoring lift on our quarter. The wind having veered a bit more to the south'ard, we were commanded to hoist the sail, which we did, carrying it from the northerly end of Bowen Island nearly to Seechelt Light. Here at six o'clock the zephyr deserted us and we took down the sail. It was at this point that we came across our first school of whales, which so fascinated Charley the cook that heaven knows when we would have gotten supper if Larry, who was beginning to regain a decadent appetite, hadn't demanded the satisfaction of his carnal cravings.

The pursuit of the whale, by the way, is one of the most spectacular and interesting industries on Puget Sound and the adjacent waters. A motor boat constitutes a delightful method of watching every detail of whale harvesting. One can see the Indians of Neah Bay starting out in their canoes and watch them plunge their bladder-buoyed darts fearlessly into the black mass of pulpy flesh, or one can pursue the swift steamers armed with their high explosive guns that throw into the ugly carcass a shell which in its turn explodes, rending the tissues, fibre from fibre, till death ensues. A trip to any of the whaling stations is easily accomplished from Seattle or Vancouver by a good cruiser and one may stay as long as the inclination lasts, unhampered by schedule. While the motor boat does not as yet play an active part in the whale catching, it is already a valuable accessory, and doubtless if some plan can be devised of effectually stopping the noise of the exhaust, which has proved the drawback hitherto in whale hunting with gasoline, the heavy duty type will be brought into use for this important pursuit.

When Charley finally recovered from his inspection of the whales and set up the table in the cockpit, we sat down to a meal fit for a king. But no palace ever possessed such glorious decorations as those which the setting sun was throwing upon the rocky prominence of the Trail Islands and further back upon the white painted village of the Seechelt Indians.

After the dishes were cleared away and pipes lit, we settled down to enjoy ourselves. As we drew near Welcome Pass, we met the tug Sea Lion heading out with a big tow of logs. Over the rail her crew waved us a friendly hail. A glass-cabin launch which had been following us for several hours finally sneaked up between us and the east shore of the pass. With the glasses I made out her name—Velma W. of Vancouver. Seeing how much better time she made against the flooding tide, we followed her lead and soon burst out of the pass into a rose-colored sea aflame with the thousand-tinted reflections of the opalescent clouds.

At this point an argument arose as to whether we should spend the night at Secret Cove or Buccaneer Bay. I was attracted by the name of the former, but the pirate blood in the skipper responded to the possibilities of the latter. We were then abreast of the upper end of the bigger Thormanby island. Apparently one might cut directly across into Buccaneer Bay, which lies between the two Thormanbys. But the chart indicates a long shoal running out for half a mile, so we laid our course for the black spar buoy which marks the outermost point of the reef. Here one of those strange coincidences of navigation made itself manifest. As we slipped by the black buoy with a favoring tide that sent us along like a race horse, we could see Velma W., which had preceded us by less than half a mile and was now heading almost in the opposite direction, shooting up into the bay with an offset that was helping her almost as much as the tide we had with us. A moment later, and a few hundred yards to the westward, we caught it ourselves and before long found ourselves at our anchorage, after logging forty miles on the day's run, in a cosy little bight which was indicated by a man who rowed out to meet us. "Six fathom," shouted the crew, as the hook struck bottom. Over in the centre of the bay another forty-foot motor yacht, Ventura of Everett, Wash., lay tugging at her cable. Our volunteer pilot explained that the little cove in which we lay was sheltered from every breeze, always had plenty of water and was near a splendid spring. It was nearly high tide when we came in, so the two rocks which guard the entrance were not to be seen. If by any chance some of my readers should happen to want to make this anchorage without a pilot, let them remember to enter the smaller bay from the beach side.

After a hurried supper we started ashore to explore the beach which was lighted by the gleams of a dozen big fires of drift wood. There we sat and chatted with some of the campers, who were enthusiastic in their praises of the beautiful bathing beach and the fishing. Our efforts at conversa-

A glimpse of the Powell River.

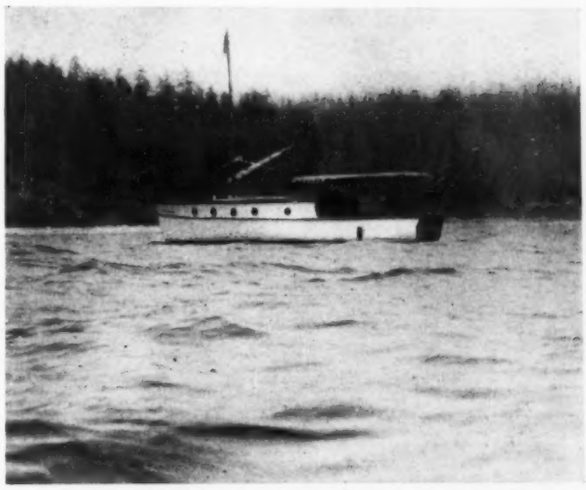
tion were sadly thwarted by the rehearsal of a Sunday-school boy band which struggled heroically if not consistently with melody—an uneven contest in which melody came out a sadly under dog. We returned, baffled, to the ship to find that Charley had thoughtfully hung out a riding light and prepared a half-ration of cocoa and sandwiches which, we unanimously voted, showed his true adaptability to seafaring ways. We retired promising one another to get up at 4 o'clock for the early start which the skipper ordered. The last thing I recall was wishing that a tidal wave would sweep landward and engulf the youthful trombone soloist who repeated with mournful insistence his efforts to assassinate that good old tune, "Rocked in the Cradle of the Deep."

Next morning when I was awakened by a bat in the face from the skipper's watch cap, it was broad daylight. The ticking of a clock attracted my attention to the opposite wall where the hands of the ship's timepiece registered 6:30. Nothing was visible of Larry or Fluff save a heap of blankets, but a noise like the internal rumblings of a volcano denoted their attitude on the question of rising at 4 A. M. Even Charley from his bed on the floor of the cockpit looked up at me sleepily as I stepped over him in my scanty attire, yawned wistfully and slumbered back into Oriental dreamland. The captain and I stripped the canvas covering of the cockpit, got up the anchor, started the engine and headed out of the bay without arousing the sleepers. It was then that we saw the value of local knowledge, for Ventura and Velma lay listed over on their sides in what had been the middle of the bay when we entered the night before. Keeping in the middle channel, the skipper held his course well down by the westerly Thormanby until we were clear of the reef, then put her on a course W. by N. ¼ N. which eventually would bring us under the lee of Texada Island.

By this time Fluff had appeared on deck and was ordered to wash down decks and clean brass. Fluff has not been long enough at the game to know all the tricks of the trade. Hidden behind the dinghy, which was lashed up on deck, I watched him try for a bucket of water, using the loose end of one of the boat falls to secure the pail. A look of pained surprise swept over his countenance as with a rude jerk the rope was snatched from his hand, and only the fact of its being fast to the davit kept it from going by the board with Fluff attached. The skipper reversed the engine as the novice shamefacedly recovered the property—and he never made THAT mistake again.

The genuine English bacon which Charley by this time had got ready for breakfast was, as the skipper expressed it, "not so bally bad, old chap." By the way, we found cornmeal mush with oranges sliced up in it, with a dash of maple syrup and a squirt from the tin cow, one of the most reliable cereal dishes any of us had ever tried in combination.

The wind, which had been a little south of east, now freshened and swung into the east, tearing off chunks of white cotton as it swept across to the entrance of Agamemnon Channel. The brisk, breezy, sunshiny morning was inspiring. After I had had the helm for a while I turned it over to Charley who had finished the breakfast things and now came asking some instruction in navigation. With the exception of



Wind vs. tide. Philistina at anchor in the Powell river, with her flags blowing forward.

trying to run the boat over the dry land across Texada Island the little Japanese quickly caught the knack of keeping a course.

By 9:30 we had come to Northeast Point, the extreme easterly point of the island. Texada is one of the biggest of the islands on the British Columbian coast and has on it some iron mines which are owned by Seattle capital. Its highest point is Mt. Shepherd at the southerly end. The waterway between it and the mainland is known as Malaspina Straits. The weather by this time had commenced to cloud up, so that we had to lay a compass course W. by N. ¾ N. in order to make Grief Point on the opposite side of the straits. After following this course for about an hour, I was pleased to see the clump of trees which stand well out on the end of Grief Point spit loom out of the fog directly in front of our forestay. We rounded the point, keeping well clear of obstruction and put her on the needle for Powell River. Half an hour later, although we could not see the river, we could hear it roar as it emptied its foaming burden into the bay. I hove the lead and we dropped anchor in eight fathoms.

"Well, Charley," said the skipper, "let's have a cold lunch and get ashore."

"Awright," was the response, "I make you combination sandweech." Straightway he set to work and with sardines, cold boiled eggs, onions, fried bacon and lettuce, he soon had a paste made which when spread on bread proved delicious. We drew lots to see who would go fishing and who would remain on shore. Uncle Fred, Charlie and I were elected to remain while the real fishermen attended to supplying the larder. I set the three of them ashore in the small boat and then proceeded up the trail to investigate the logging camp at the top of the hill. Here I found a saw-mill owned by a Mr. McFeeley, who I learned later, is planning a pretentious motor yacht for cruising in these waters. The cottages of the men who worked in the mills were grouped in a cluster around the beginning of the trail which our boys had taken to Powell Lake. Most of the cottages, while unfinished, were very neat and tidy. Flowers bloomed gaily in their tiny yards or ran up on the porches. In front of one of them I made the acquaintance of a very precocious young lady—of two and a half years—who informed me that her home was in Seattle and that her father's occupation was "to work to buy her bread and butter." A little further on I came across a camp where two men and a feminine camper were engaged in cleaning some trout for the noonday meal.

"Fine fish you have there," I commented. "Did you catch them yourselves?"

Fishing at Campbell River. A 55-pound tyee, caught with the rod in 15 minutes.

What they did in a single evening on Campbell River.

One of the men looked at me suspiciously. "Who put you next?" he grunted. I disclaimed any prescience, whereupon he explained that for nearly two weeks they had fished with every kind of lure and caught nothing—while around them others had no difficulty in getting all kinds of sport. The hoodoo had gotten on their nerves but they were determined to stay and wear it out. I offered the use of the tender for a troll at the mouth of the river, an offer which they accepted with a grim forecast of the probable futility of the effort. So without even waiting for lunch they started.

Arriving back on the beach where the tender had been left, we discovered that Tuscora, owned by W. S. Chambers of Victoria, vice-president of the Pacific International Power Boat Association, was lying off the saw-mill landing. We boarded her for a chat. Tuscora is one of Schock's boats—at least her hull is. She cruises winter and summer wherever the whim of her owner sees fit to send her. Her excessive beam gives an astonishing amount of room, all of which is utilized with masterful ingenuity.

We started in to fish but the hoodoo still pursued us. For over two hours we trolled back and forth across the mouth of the river. One of the ill-fated Waltons got his tackle carried away by a big fellow, but that was all. In a leaky dug-out two boys paddled by us, and lifting up the rushes in the bow, showed proudly three big salmon. We landed in disgust and proceeded to interview the old hunter and trapper, whose shack on the point of land which half conceals the mouth of the river had attracted my curiosity.

We were listening eagerly to his stories of past experiences when, looking out to where the Philistina lay, I beheld a strange phenomenon. The wind had freshened to a point that set our little vessel bobbing merrily at her cable. Almost as if they were carved from wood, the stiff breeze held every flag straight out at right angles to its particular staff. At first I thought nothing of this until, glancing at the bow, I noticed that the cable was pulled taut with the stern of Philistina pointed right into the eye of the wind. Just at that moment the skipper hallooed from the beach. He had returned, alarmed by the increased blow for the safety of our anchorage. For a moment he gazed bewitched at the spectacle, then he burst out with a profane preface—"Well, I'll write the Racine people to-morrow that they have the only boat that will lie up against a 12-knot breeze without an anchor." A partial explanation was forthcoming when we rowed up alongside and bucked the strong current from the mouth of the river, but even that seemed hardly enough to oppose the strength of the windage.

The skipper had come back empty handed. His excuse was that worrying about the boat had caused him to turn round before he got to the lake. At five, Fluff showed up with an air of disgust and three small trout. Larry saved the day, however, about an hour later with some 30 or more dark skinned prizes running up to eight inches. We emptied four of the red oil cans into the tank and got up anchor, pursued by the bullets of one of the millmen, who could not resist the sight of the red cans floating saucily on the water and blazed away merrily at them with a heavy calibre rifle, apparently regardless of the fact that we were well within range.

Charley fried the fish and the skipper piloted us under the lee of Harwood Island to enjoy them in tranquillity. There are a few and occasional excuses for gluttony. The first trout of the season served al fresco is one of them. We needed no excuse. A sprinkle of salt was the only condiment, fingers and teeth the only tools, but the way we ploughed through that big platter of golden, meal-covered tid-bits would have done credit to a camp of lumber jacks. "Larry," said Uncle Fred, after we had paused for breath, "you have some grease on your chin and cheeks way up to your eyes." "I know it," admitted the offender, "and I'm proud of it. That's the first meal I've enjoyed for the last six months."

We pulled up the anchor and proceeded. Again the sea was gleaming with the iridescent reflections of the unimaginable sunset. Our wake scintillated with a thousand hues margined with a soft white border of foam. Suddenly almost under our bow a column of water shot high into the air and a second later the huge bulk of a monster blackfish parted the surface of the waters and disappeared with astonishing rapidity as he caught sight of us. It was all done so quickly that some of us only heard the swash—like a leviathan's sigh—as the blackfish sank. Evidently he went below to tell the other members of his school, for shortly on all sides, but at a respectful distance, spout upon spout revealed the curiosity of the odd-shaped monsters.

To starboard and astern the Indian village of Sliammon lay, deserted by its tenants who are always away at this season selling their baskets and fishing. On our port quarter Savary Island with its wonderful white cliffs—almost like the Palisades—drew the beams of the setting sun. This island has recently passed into private ownership and a cruising motor yacht will serve as ferry for the purchaser and his friends.

Just as it was growing dark, Philistina entered the harbor of Lund, a typical trading point on the mainland. There are several timber enterprises near here which contribute to the support of the little town.

(To be continued.)

Tied up to the logs at the mouth of the Campbell River.

Catching fish by the barrel.—Hauling in the net of a fish pound.

With the Seine Fishermen of Jersey.

How the Gasoline Motor Has Wedged Its Way into the Time-Honored Fishing Dory. The Amphibious Men and Motor Who Help Supply the Fish Eaters of the Nations.

By Harold Whiting Slauson.

Photographs by Levick.

SPRING LAKE is one of the numerous attractive summer resorts of the New Jersey coast. Sea Girt is another, about one mile further down the shore. Between these two places, in a rude frame building exposed to the storms and winds of the Atlantic, lives a small group of fishermen whose surroundings, appearance and habits are in striking contrast to those of the residents of the nearby villas and magnificent hotels of the wealthy summer colony. Surrounded on all sides by every evidence of luxury, these few fishermen live their own life, uninfluenced by what goes on about them.

Even the coast itself is different at this particular point of the shore line. From a smooth, gradual ascent extending from the ocean to the front lawns of the summer hotels of Spring Lake and Sea Girt, it becomes more dreary and desolate for the mile separating these places, and the sand dunes from which flows the stiff, coarse grass peculiar to the sea shore, give to one who confines his observations to the few hundred yards surrounding this locality, the impression that he is stranded on a barren shore far from civilization. Nor would the sight of the fishermen in their working clothes tend to modify that impression. Sunburned almost to the hue of Indians, in high hip boots or bare feet, some in yellow oilskins, some in overalls and others nearly naked, this little band is typical of its surroundings and a touch of Gloucester, Holland or Norway is added to the scene.

The single cylinder does the work of a dozen men at the oars.

Scandinavians form the majority, and the contrast between their brown skins and blond, straw-colored hair is amusing in the extreme. One or two each, of French, Portuguese or Irish, however, make this a decidedly cosmopolitan body and, search as he may, the census taker will find just one voter among the sixteen men composing this small fishing colony. What care they

The motor is started full speed reverse, and then all jump aboard.

Cat-like qualities are required for adjusting the net and the lines that hold it.

The men are of many nationalities. Good nature prevails among them.

who is President. Their business is fish. They catch fish; they eat fish; they get paid for fish. The President cannot make the fishing good or bad.

But their kind of fishing does not consist in throwing a line in the water and waiting patiently for a bite. The wholesale method that they use calls for action—action from five in the morning till six at night—action in all kinds of weather—the kind of action and skill possessed in the highest degree by the hardy, born-and-bred sailors of the North. While the sturdiest of the summer visitors, well ensconced in the protection of the walls of his hotel or cottage, may be watching a storm during which he hardly dares venture for a walk, these intrepid fishermen, scarcely half a mile distant, may be battling with the surf—with surf which would try the courage of the bravest life saver of the coast, in an endeavor to launch their motor boat and reach the nets for their twice-a-day haul of fish. They do this not so much because of the value they place on the few barrels of fish which they might obtain as because they know not what fear of the water or elements is.

As long as the regular fishing season lasts—sometimes as late as January—these men work for daily wages for the dealer who owns the house and equipment. When the bluefish season has closed, the men who remain are allowed to work on shares, and by means of cod and other winter fish which are caught, are enabled to eke out an existence until the next season begins.

This business of theirs is by no means monotonous, for "Fisherman's Luck" is as fickle a goddess (or she-devil) in seine fishing as she is in any other variety of the sport or profession. A boat may come in one day with two barrels as the total haul, while the next trip may find her laden with twenty times that number taken from the nets.

The nets are fastened to poles which are arranged in a rectangular form and placed in the sand in fifty or sixty feet of water about half a mile from shore. The rectangle, formed by the poles and nets, makes what is known as the "pound," and there may be several of these placed at varying distances from

the shore. The seine proper merely serves to guide the fish, which are unlucky enough to be swimming in that vicinity, into a smaller bag opening out from the net. It is this part of the net which is hauled in and from which all the fish that are captured are taken. The poles and remainder of the net are undisturbed until some adjustments or repairs are made necessary.

As the poles to which the nets are attached project fifteen or twenty feet out of water and are continually swaying with the motion of the waves, the cat-like qualities of a sailor and rigger are required for adjusting the net, and the lines that hold it to the proper position—and the fishermen are as much at home while walking tight-rope over a tumultuous sea or "shinning" up a slender pole as they are when snoring in their bunks on shore.

Even the fishing boats seem to be imbued with the spirit of the place. Broad-beamed, substantial and heavily built, they too are weatherbeaten and scarred by wind and wave, and yet as rugged, hardy and strong as the crews that man them—and nearly always as full of fish, too. Thirty-six feet long with a nine foot beam and high freeboard at the bow, these heavy dories carry their crew and, sometimes, forty or fifty barrels of fish from nets to shore through all kinds of weather. A heavy boat to move, this, with its thick ribs placed close together, and one which required the united efforts of half a dozen men at the oars to make any appreciable headway, even in calm weather, against the tide and surf. Now, however, the six men who formerly rowed sit quietly on the cross seats and watch their craft plow through wind and waves at a speed much in excess of that of the back-breaking rowing days—and all due to the efforts of a small, red, iron thing, about half the size of a man, which barks sharply at every breath, but which, at the touch of a button, can be quieted instantly.

Yes, the gasoline engine has wedged its way into the old and time-honored fishing dory and a single-cylinder, six and one-half horsepower motor installed in the extreme stern of the boat does the work of a

Hauling in is not a job for weaklings.

She is pulled high and dry with the aid of rollers and planks.

In beaching she is driven in during a lull in the surf.

"They are as much at home walking tight rope and shinning poles as when snoring in their bunks."

dozen men at the oars. Probably in no form of work-boat has the gasoline engine demonstrated its efficiency and usefulness to such a degree as in this heavy fishing craft. Occupying but a couple of square feet of space in the stern of the boat, this little motor is of invaluable aid in beaching or launching the craft in a heavy sea, and the ease with which its speed can be varied or its direction reversed makes the handling of the dory an easy matter compared to that of the olden days. The fantail stern and deep keel of this type of boat enable the propeller to swing well above the greatest draught, and the addition of a skeg protects the wheel from contact with the sand of the beach, even when the dory is pulled high and dry on the shore.

Whenever the boat returns from the pounds, it must be beached and pulled far up on the sands, out of reach of the highest surf or tide. Beaching the boat during a storm is a delicate operation and requires the best of skill and judgment on the part of the captain and crew. If the wrong time is chosen and the boat sent in in front of a high "comber," the craft may be swamped or hurled up on the beach and thrown down with sufficient force to open her every seam. The secret of a successful landing during a heavy sea lies in "jockeying" around beyond the breakers awaiting a lull in the surf, and then to rush with full speed toward the shore before the next curling wave can reach the boat. As soon as the boat strikes the sand, a block and tackle are attached and a team of horses used to haul the dory entirely out of the water. This is made easy by means of planking laid on the sand over which rollers are placed, and by the concerted efforts of the men and horses, the heavy boat is soon far up on the beach where the fish may be removed at leisure.

The launching of the boat is about the reverse of the above operation. The craft is run down the beach until the stern is in the water and, when a favorable opportunity arrives, the boat is pushed far out, the motor started full speed reverse, the men wade out until the dory is entirely afloat, then jump aboard over the high gunwale with the agility of so many cats—and the dory is safe beyond the breakers in half the time in which it could have been accomplished with oars.

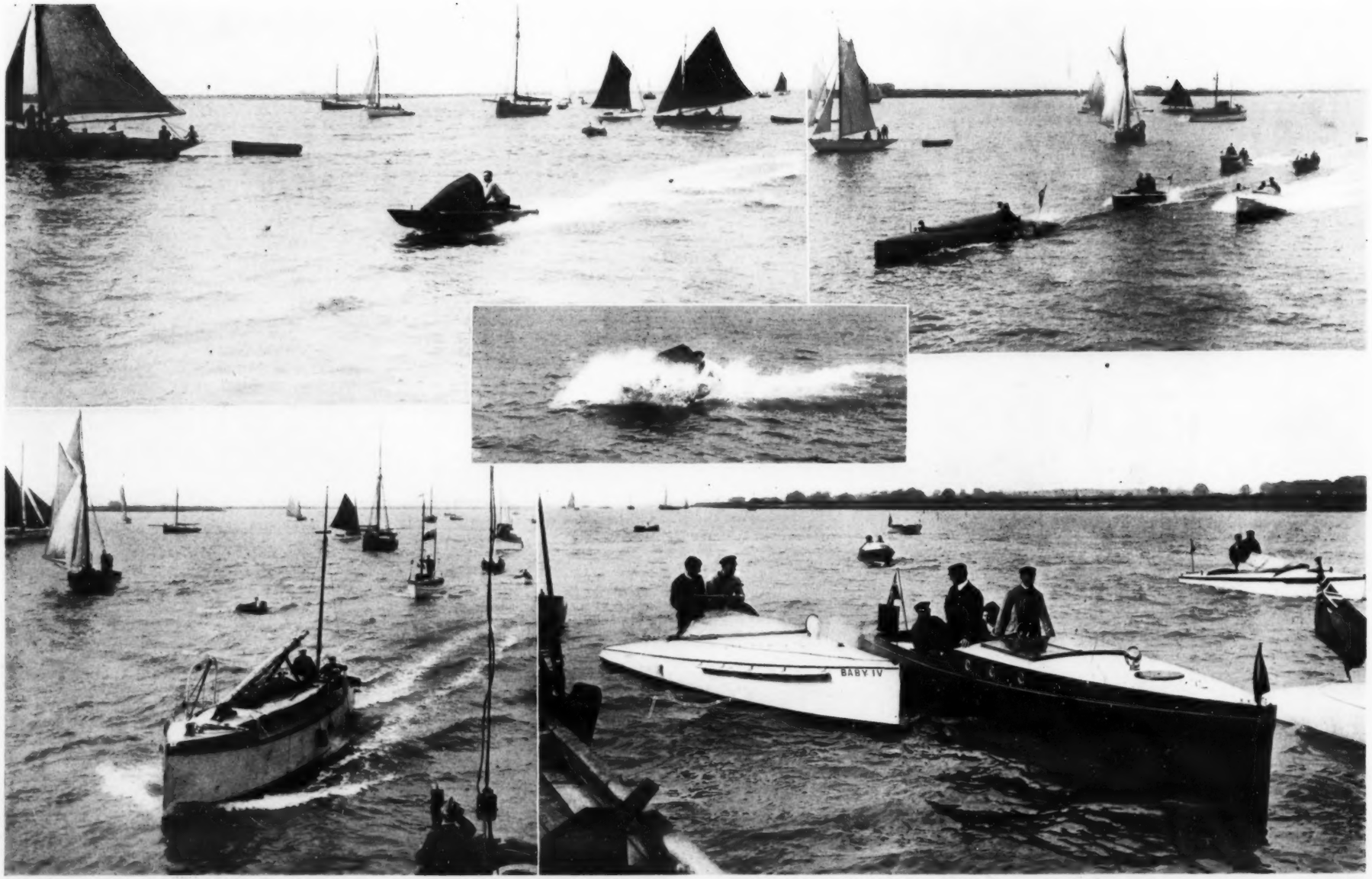
The motor, too, is as nearly amphibious as the men, and on many a stormy day has it taken the boat safely to the shore when the flywheel was almost submerged in water which had been taken aboard from the heavy seas. It is really remarkable under what wet conditions this little motor will run, and so reliable is it that the captain of the crew, who is also the "chief engineer," has come to the conclusion that it will operate as long as the boat can be kept afloat. The men have come to look at it as possessed of almost human intelligence—as long as the batteries are kept dry—and the conditions under which it is operated speak highly for the merits of the make-and-break ignition system which it employs. Although in ordinary practice the jump spark may be considered more simple and efficient, it is safe to say that it would hardly be found suitable for operation in the rain and spray to which all parts of this motor are exposed, unless an elaborate and complicated system of insulation were installed

But this little gasoline motor has not only lightened the work of the men and facilitated the trips of the boat to and from the pounds—it has lessened the repairs necessary for the poles and nets as well. It will be realized that, in order to withstand the continued commotion of the sea, these slender poles, which are from 70 to 90 feet long, must be fastened firmly in the sand. They are too slender to be driven in, and the method employed in the majority of such cases is to drill a hole in the sand by means of a stream of water forced from a hand pump. The pipe, terminating in a nozzle, through which this stream of water is forced, is carried down with the pole, and as the sand is carried away, the two are pushed in together. When this hole has been drilled to a sufficient depth, the nozzle and pipe are withdrawn and the pole becomes anchored in place more firmly as the loose sand settles around it and becomes packed by the action of the water.

By means of a device used by the proprietor of this fishing camp in question, the motor is uncoupled from the propeller and is connected directly to a large rotary pump which forces a much more powerful stream of water down into the sand than could be obtained with the hand apparatus. The poles can also be set much more quickly, and because of the greater depth to which they are sunk they last twice as long as they do when installed by the hand method. It is now necessary to renew the poles but once every two years. In fact, the poles would remain firmly in place for an indefinite period when the power pump is used were it not for the worms which, in time, eat away the ends that are buried in the sand and cause the poles to break off close to the surface of the ocean bed.

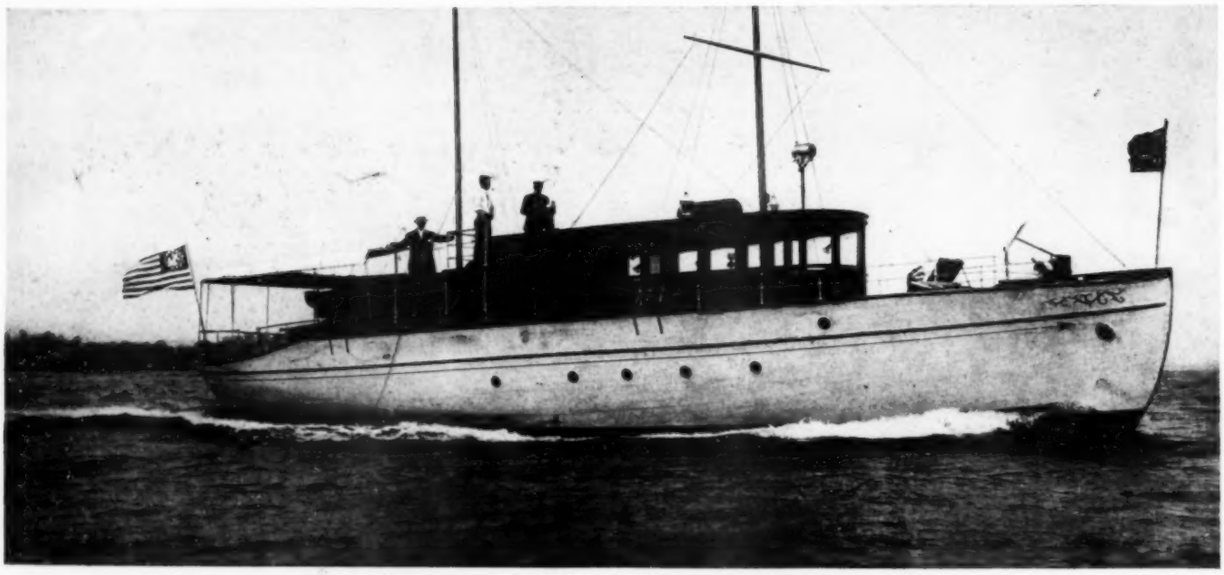
This particular motor seems, in very truth, to be a jack-of-all trades and has proved itself so indispensable to this little colony of fishermen that a slightly larger one is to be installed in the other boat belonging to the camp. Meanwhile, this motor is doing the work of two, for twice a day the other boat is towed to the outer pound where, in charge of the second crew, the nets are hauled up and the fish gathered in, while the power boat has returned to the inshore pound. After attending to its own nets, the motor boat chugs out and brings the other dory and the cargoes ashore. During the busy season this little motor runs almost continuously for from twelve to fourteen hours a day.

Although of several different nationalities, fishermen live together in perfect harmony and a general spirit of good nature prevails among them all. If anyone desires a convincing proof of the health and vigor attained by such a life in the open air, he need but to watch these men at a single meal. Plates piled high with fish, potatoes, rye bread and other plain but hearty foods disappear from before them as though the men had been starved for days, and the observer is prone to wonder how there can possibly be any fish left to be sent to market after such a repast is finished three times a day. But there are plenty left—twenty to fifty barrels of them, packed in ice and sent to the dealers of the surrounding country every day. And this is the contribution of these sixteen faithful men and a gasoline motor to the fish eaters of the nation.



British motor boat racing. The recent meeting at Burnham-on-Crouch.

Above we have the new hydroplane Two-Step at the left, and at the right, the head of the procession down River Crouch, the Defender, with Admiral Kennedy, leading. In the center, the hydroplane Two-Step, which has a 25 h.p. motor, is running through the wash of a large boat. Below at the left, in the foreground, is Mr. P. C. Middleton's Eclipse, the winner of the auxiliary cruiser class, and at the right are shown Baby IV, Tyreless and Defender in the speed class.



Le Cygne.—A roomy cruiser for use on the Great Lakes.

Le Cygne--A 70-Footer.

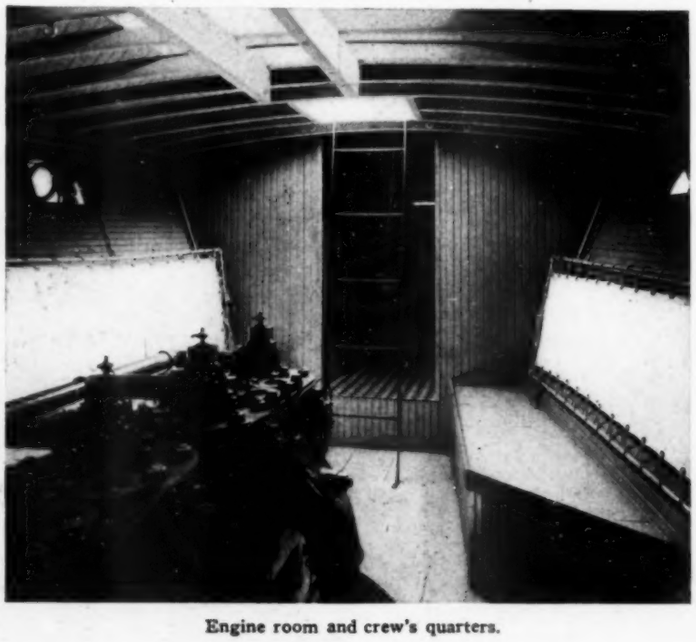
THE vessel which we illustrate herewith has a great deal of interest from the fact that it combines a variety of things, which most yacht owners desire, and which, unfortunately, they do not always succeed in obtaining. Le Cygne was designed by Whittlesey & Whittlesey, 11 Broadway, New York, for Mr. A. E. Brunet, of Montreal, Canada. She will be used mostly on the St. Lawrence and Lake Ontario. Her principal dimensions are 75 feet length over all; beam, 17 feet; draft, 4 feet. She was built by the Stamford Motor Co., of Stamford, Conn., and has a 75 horse-power Standard engine. The hull is very heavily built, so as to give great strength.

In designing this boat, the builders aimed to combine a comfortable, roomy vessel, with a good breadth of beam, which should have good seaworthy qualities. The latter feature is especially needed, because a good sea boat is more essential on large bodies of fresh water than on the open ocean. She made the trip to Canada by the outside route, and proved herself a fine sea boat under most trying weather conditions which prevailed on her way North. Her ample freeboard and great flare forward make her remarkably dry and enable her to meet the short steep seas of the Great Lakes easily and with comfort. A jury rig of canvas was provided for the trip. This was made just large enough to give her headway under sail alone, in order that she might be ready for any emergency likely to arise. Her spars were intended, however, merely for flags and signaling purposes. On her home station she is not intended to use sails.

With her ample beam, unusual space was provided for accommodations of owners and guests. The designers have utilized this to the best advantage as will be seen from the cuts. The owner's stateroom is placed in the after part of the vessel and, as the photograph shows, is not only elegant but unusually ample for a boat of her size. In addition to the large chest of drawers and mirror there are two wide berths with floor room between them. There are lockers under each berth.

The galley is placed amidships with the engine-room and crew's quarters forward. The dining-room is on deck and forms the deck house. It has windows in front and on both sides. The after is devoted to the buffet. In the center is a large table with folding leaves. It is unusually spacious as will be seen by reference to the photograph. It is situated directly over the galley with which it communicates directly by means of a dumb-waiter.

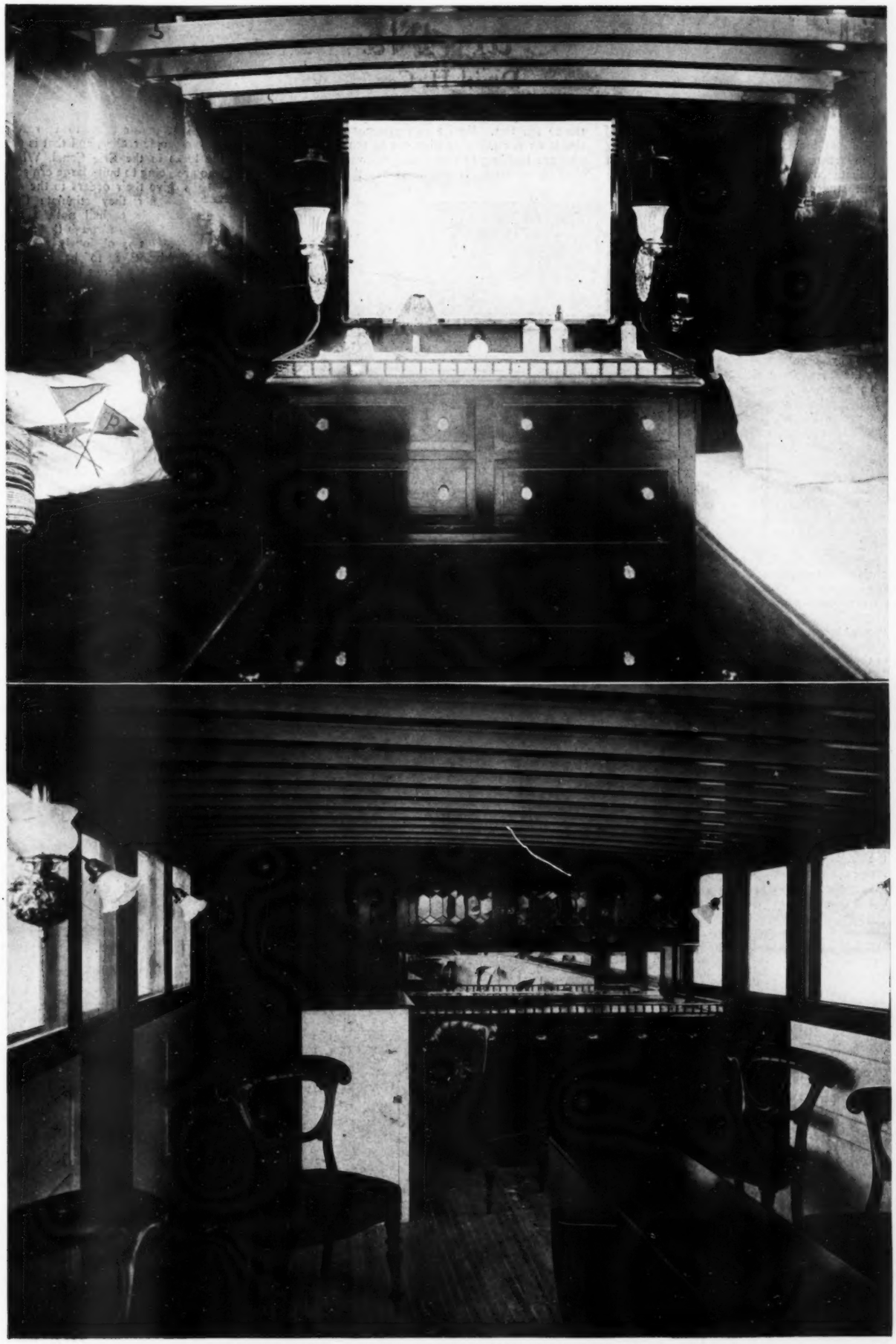
The engine-room is forward and has ample space about it, a marked contrast to a great many modern engine-rooms. Some designers seem to think that if there is sufficient space to allow the machinery to operate nothing more is needed. The engineer and his convenience are not given a thought with the result that inability to properly care for the engines is often the indirect cause of breakdowns.



Engine room and crew's quarters.

In the forward end of the engine-room are two hinged pipe berths. The engine-room has two portholes and a hatch by which the deck is reached. It can be seen from the engraving of the engine-room that the flare of the boat is very considerable. This gives her the much desired buoyancy when hard driven into a head sea.

The boat is lighted by electricity furnished by an independent set. On account of her great breadth of beam there is ample deck room, and a large party of guests can be easily accommodated for an afternoon sail. With such a hull and engine the owner will be able to undertake cruises of almost any length.



Le Cygne.—Cabin interior above and view of the dining saloon below.

Talks With Our Naval Architects.

Daniel H. Cox.

MR. DANIEL H. COX, of Cox & Stevens, New York City, graduated at the United States Naval Academy in the class of 1894, and then took a post graduate course of three years as a government student in naval architecture and marine engineering at the Royal Naval College, Greenwich, England. He served as Naval Constructor in the United States Navy until 1903, when he resigned to associate himself with his brother, Irving Cox, in the firm of Cox & Stevens. Among the best known designs by Cox & Stevens are the steam yacht Kehtoh, the auxiliary schooner Haida, and the gasoline motor yachts Viator, Neshaminy, Sis II, Kalmia and Tekla II. When a representative of MOTOR BOATING called upon him recently Mr. Cox had this to say regarding present tendencies in yacht building: "One of the most striking features of the yachting situation at the present time is a stagnation in steam yacht building, due to two causes. One of them is the fact that the motor boat has eliminated the usefulness of the small steam yacht, and the other is the uncertainty regarding the new law imposing a tariff on foreign-built yachts. The constitutionality of this law has yet to be decided, and until the matter is threshed out it necessarily puts a damper on building yachts abroad for Americans. It is at least twenty-five per cent more expensive to build yachts in this country than in the United Kingdom, but the duty imposed on foreign-built yachts by the new law is thirty-five per cent. So everyone is waiting until the law is tested in the courts.

"It was about five or six years ago that the gasoline engine began to be a factor in yachting. Before its possibilities were realized there were built every year in the United States a considerable number of steam yachts from 110 to 150 feet. Now a new steamer of this size is an exception, as nine out of ten people who are building in this class prefer the gasoline motor boat. It is safe to say that two-thirds of all building in power yachts will be diverted from steam to gasoline. Steam yachts, except of large size, will be exceptional.

Daniel H. Cox, Naval Architect.

"It is an encouraging feature of the situation that interest is drifting away from the high speed racing type of motor boat to the sensible and roomy cruiser.

"One factor operates as a restriction upon the size of cruising motor boats to a greater extent than most people realize, and that is the length of the locks in the Erie Canal. When most men who are going to build large cruisers give their orders to the designer they stipulate that the boat shall not be too big to go through the canal, for it is obviously a great advantage to be able to cruise without trouble from the Great Lakes to the Atlantic seaboard or vice versa. A boat must be not longer than 99 feet over all if it is to use the canal. If this limitation were removed there would soon be apparent a large increase in the average length of cruising motor boats.

"For steam vessels the trend in the near future will undoubtedly be toward the use of crude oil as fuel in combination with the regular water-tube boilers. The advantages of oil fuel over coal are obvious—absence of dirt and dust, ease in taking aboard, and ease and reliability of firing boilers. The firing can be much more accurately regulated and controlled than with the stoking of coal. The size of fire-rooms can be much reduced, and the number of men necessary in the fire-room is very much less. This use of oil fuel on steam vessels has been much further developed abroad than in our own country. For some years past torpedo boat destroyers of England, France, Germany and Russia have burned oil, but it is only lately that the United States Navy has taken it up. Winchester, a turbine yacht of torpedo boat destroyer model, recently launched in England, is the first yacht to burn oil fuel, and she is a complete success. She will be brought to this country.

Producer gas may soon be of paramount interest, particularly if the cost of gasoline increases.

Tekla II.—Designed by Cox & Stevens. Her plans appeared in the October issue of Motor Boating.

Hints On Motor Boat Navigation.

Part VI---The Use of Charts on Small Cruisers.

By George S. Goldie.

WITH a thorough understanding of the Government chart comes a sense of comfort and a self-reliance which put the possessor in a class entirely apart from the great majority who are content to enjoy the pleasures of the water in their own vicinity during clear weather. And only the other day an illustration of the loss felt through the lack of such knowledge was brought vividly before me. Having casually asked an acquaintance how a certain man was getting along with his new boat the reply was made that the boat was in the water, complete in every way, and ready for the fall fishing, but that there was nothing planned or planning in the way of getting to Montauk Point where the fish were, because the owner would not go the distance through those waters without a navigator. The boat was built with the view of making it able for almost any weather that the bad waters of this locality can furnish, yet the owner finds something lacking for his comfort. An able boat has been produced, and with it comes the knowledge that the boat does not count so much as confidence in one's ability to cope with the varying conditions that are certain, at this season of the year, to be met about, and on the way to, that renowned headland.

Finding one's way by the use of charts is easier than navigating a city by the use of street signs. Everything is marked and is clear enough when the chart is understood. But, as the skipper replied on the night during the Block Island Race, when he had asked the direction of Salt Pond from Race Rock, and had been given the "course," "of what use is the course to me when I have no compass? I want the direction!"

The skipper who would sail that race without a compass, and stick to it during the blow of that night, had in him the making of the finest kind of sailor, but he was helpless without the chart, and the chart backed by a compass, a familiarity with which is entirely necessary before a chart is of much service.

I have watched men who were old hands at the game, and good ones, and found that they would lose the compass point and check themselves by the wind. So, before using charts get the thirty-two points down fine and train the eye to know what point is at the lubber line. Box them backward and forward from the cardinal points, and then from any point, for it is all too easy to be steering very carefully a half point or even a whole one out of the way and be sure that the compass is true. To ascertain if that is so, lay off a course on the chart from one fixed mark to another, between two beacons or between a spindle and a beacon, or a spindle and lighthouse. Then, placing the boat some distance away, line up one mark with the other and run for it, keeping the two objects in range, and see if your compass agrees with the course laid out. Then run away from the objects, keeping them in range over the stern and see if the same point is toward them. You have now tried out the compass on two courses and noted how much it varies, if at all, on each. After this select another range that will be as near at right angles with the first course as possible. Run toward and away from it and you will have tried the compass on four quarters. If you can now find a north and south run and an east and west one and try the compass on them, the card that has been written out will serve all practical purposes.

If different ranges are not convenient, carefully lay off on the chart of your vicinity, a few compass courses from one headland to another, from a rock to a headland, or to an island, taking care to select those which are some distance apart for a long course is less apt to give serious error than a short one.

It so happened that shortly after one midnight, late last September, a few of us were passing Great Captain's Island, bound west. The chart told us that Execution Rock light lay S.W. ¼ W., 8 miles full away and that it flashed each ten seconds. Putting the boat on that course we readily saw the flashes of the light. We also saw on the chart that Execution light has a red sector covering Hart Island and the rocks to the north; the southern edge of the sector taking in all of the shoal water, to the south of Hart Island. When one sees Execution flash red it warns him to steer southerly until it flashes white.

The next light is Stepping Stones, a fixed red, lying S. W. ¼ S., 3½ miles away. The red rays of the last light warned us from the dangers lying to the north, but there is nothing to keep one from straying to the south of the course in the endeavor to avoid the numerous strings of barges that are constantly being towed through these confined waters. Not much of a wandering to the south of the course would bring one close up to Success Rock, lying not far away on the port hand.

By looking at the chart one will see that by keeping on the line between Execution and Stepping Stones, the water holds clear, and that nothing need be feared save the tows. They are indeed dangerous, and those who sail the water at night should be well versed in picking up the three lights, which the long tows (over 600 feet) carry, one above the other. At a short distance these lights blur and run together as a glimmer and can thus be distinguished from a single distinct light. When past the tug do not attempt to cross its stern until having looked carefully for any white lights that may be following it. They will be on the barges. Do not trust your boat near the barges' sides, as the suction is strong and will draw in quite a large boat.

After passing Stepping Stones, which you have left on the port hand, it is sometimes hard to pick up the fixed white light at Throgs Neck, because of the numerous other fixed white lights, electric and otherwise, in its vicinity. Here again you refer to the chart and find that Execution and Stepping Stones in range will carry you almost directly to the tip of the point at Throgs Neck, thereby enabling you to pick up Throgs Neck light readily.

Having rounded the point, which we did after opening out Whitestone light until we were sure of a good clearance, we straightened away W ½ N for the run of three and a half miles to the black spar between North and South Brother Islands. The course leads close to Whitestone, and as the chart shows a cluster of rocks off the point it is good policy to sheer off a little more than the course calls for, resuming the course as soon as you are past it. Hunts Point on the starboard is fairly close, as is the northern end of Rikers Island on the port.

The moon being full and the tide close to the third hour of flood the strength of the tide in its seething run at these parts was being felt and care was taken in the steering. As we passed between the North and South Brother Islands the course was shifted to the S. W. x W. ¾ W. run for Hell Gate. Herein lies the value of familiarity with the chart and compass. Though the waters of Hell Gate and vicinity have never been navigated before one may enter them with as much confidence as he would any other waters.

As we approached Sunken Meadow the progress of our boat was slow and careful, attention to the steering was necessary, the witch tides threatening to throw us against the black spar.

The U. S. Coast Pilot tells us that abreast Hallets Point the current has been measured at times as high as eight knots. It was soon evident that this was one of the times. Our boat having averaged nine statute miles an hour on a run of full three hundred miles it may safely be called a nine-mile boat. Yet abreast Negro Point, on Wards Island, we began to have halting spells. While we were here we saw a schooner caught by the witch tide and driven with wonderful speed until her bowsprit was in advance of the tug which was towing her. When abreast Holmes Rock we saw a freight steamer that had passed as at Negro Point standing as if anchored at Hallets Point.

We had been a half hour in going something over three-quarters of a mile and were almost between Hallets Point and Hogs Back, off Wards Island, when there sounded an alarming and persistent danger signal from over our port quarter. It had been daylight for some time, and, looking over my shoulder, I saw an immense Sound steamer, her decks black with people waiting to see what would happen to the tiny obstruction. But though tiny the launch was as powerful as the liner, being backed by the navigation laws of the government and in about the only position in which it is safe for a launch to insist upon its rights; viz, being overtaken from astern in the Hell Gate passage. So the skipper simply looked ahead and took care that a witch tide did not throw him any nearer the cauldron raging from Hogs Back to Holmes Rock. The liner finally passed to port; and we for another half hour struggled to gain the few yards between us and the end of Great Mill Rock.

In a contest of that sort it is well not to put the boat in such a position that should the motor slow down or stop, the boat will drift toward danger. Many hold to the belief that the current will carry a boat clear of rocks, whether they are showing or just under the surface. One has but to watch the water flowing against rocks showing, and over rocks sunken, to see that it is well not to be in the line of drift with them when the motor does go wrong. Wherever the water goes the boat will go.

To illustrate the use of a chart in entering a harbor without buoys inside, we will go into Branford, using chart No. 261. If drawing seven feet of water we will lay off a course that gives that depth without danger. Some of the going may be close, but it is definite and sure. If entering from the west the chart shows that on a line from the Cow and Calf to midway between the Big Mermaid and the Little Mermaid, there is more than the required depth. It shows also by placing the parallel rulers on that line and extending them to the compass rose that the course is N E ¼ N. Now the surety of the thing lies in the course, and in knowing the distance from a definite spot to the Mermaids. From abreast (at a right angle with) Johnson Point it is a short ⅝ of a mile, therefore, there can be no mistaking which islands are the Mermaids.

If entering from the East, a ⅝ mile course N ½ W starting from abreast, and to the east of, Fawnton Rock, will bring the boat just to the westward of Little Mermaid. From between the Mermaids a N E x E ½ E course of ⅜ of a mile will lead to the narrow entrance of the Branford river at Branford Point. The value of using the compass comes in here. I have known a skipper to spend a long time looking for the entrance and finally asking where it was. To ascend the river to the docks, steer from the Point E N E ¼ N, ¼ mile for the eastern point of the solid land seen rising from the marshland. (Straight black marks along the shore line indicates an abrupt rise). Hold the course until you can run E ½ S for a point of marshland which lies between two creeks; hold this course for 3/16 of a mile,

or until the easternmost edge of the marshland to the north, or port hand, lies N x E; then commence a slow swing around that point gradually approaching the port shore until in the middle of the river and hold to the middle until up with the docks.

By the aid of the contour lines which will show whether rising land slopes gently or is steep one may know whether the course is toward the side or the crest of a hill.

Any charted river may be run by the system just described. I have found myself running the shore to the eastward of the Thimble Islands and not paying attention to anything in particular except that the boat was heading for a buoy. A fog shut in; the buoy was picked up by the aid of the compass; it was looked at to get its number to assist in finding our location that we might lay courses to run by. The number and nearly all of the paint had been washed off. Close by, lay two rocky islets.

Finding the general trend of their shape by the compass, the chart was searched for two islets of the same general shape and bearing; having found them we were enabled to place the number of the buoy and to lay the necessary course.

Many can gauge the chart so well that they do not lay the course on it, but look at the direction they wish to run and then at the compass rose to see which of its points agree with the required direction. This method is not used for fine work.

Many pilots dispense with the necessity of many of the buoys on their routes by knowing how certain buildings (that may be marked on the charts as tiny squares of black) or shore marks range with the spot where the buoy should be.

While running a shore during thick weather, a look at the chart will show the depth of water which will give one a sure offing. There are times when running the shore as close as safety will permit is necessary for both comfort and safety and those times are during hard offshore winds. It will be seen that a depth of five fathoms will keep a boat in good water between Point Judith and Watch Hill. Tie your sounding line to a cleat giving scope enough for it to reach bottom in five fathoms, then if the land is on your starboard hand, sheer off to port until the lead does not touch, then resume the course.

If the land is on the port hand and the lead touches, sheer off to starboard. If skirting Block Island, seven fathoms will be seen to be the safety limit. This method applies to almost any shores to the south of Cape Cod. It is not so useful to the North of Boston, there being much of that coast which is very abrupt.

While cruising it is always interesting and at times necessary to be able to look at the chart. During a blow or rain this is done under difficulties; so we will give the construction of a case that is simple and complete in its working.

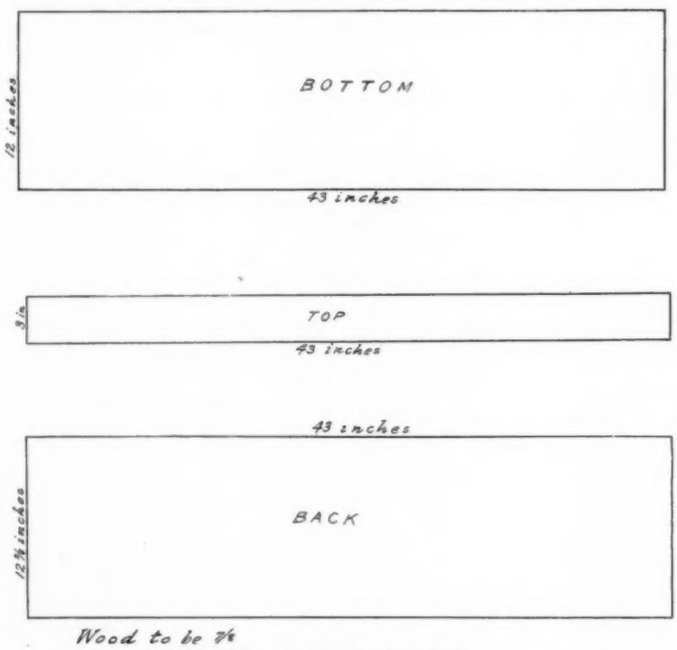
First cut out the two end pieces according to the scale, 10 inches at the base; 11¼ high; 1 inch across the top. That makes the front and the back 12 inches each. The front is to be cut 43 inches long and 12⅜ inches wide; the back the same.

Fasten the front and the back to the end pieces, placing the upper edges even with the upper corners of the end pieces; with the ends flush with outer edges of the end pieces, allowing the lower edge of front and back boards to lap over; then bevel off to form a true line with top and bottom of ends. The back is to be fastened permanently with brass screws, while the front has been put on temporarily. It is now taken off, and cut out for a sheet of glass, leaving a good underlap to keep out water.

The bottom is cut 43 x 12 inches and put on square, as the corners will not chip or mar as easily as if beveled. The top is to be cut 3 x 43 inches and beveled to run with the slant of front and back.

Two rollers of 1¼ inch diameter are to be provided, and just enough in length to go inside easily. Driven to a depth of three inches into the left end of each is to be a ¼ inch diameter piece of brass rod, left long enough to go nearly through the left end. Into the right end of each is to be driven a brass rod of ¼ inch diameter which has been hammered slightly flat at the driving end and bent into a crank shape at the other. The pins will drive with less danger of splitting the sticks if a boring of slightly less diameter be made first into the wood.

Each roller is to have a groove cut into its length that will be 5/8 of an inch deep and 1/16 wide. This is to receive the end of the chart which is then to be creased down and is ready for rolling.



Parts of the chart holder described.

Into the front edges of the ends is to be cut slots to admit the passage of the rods projecting from the ends of the rollers.

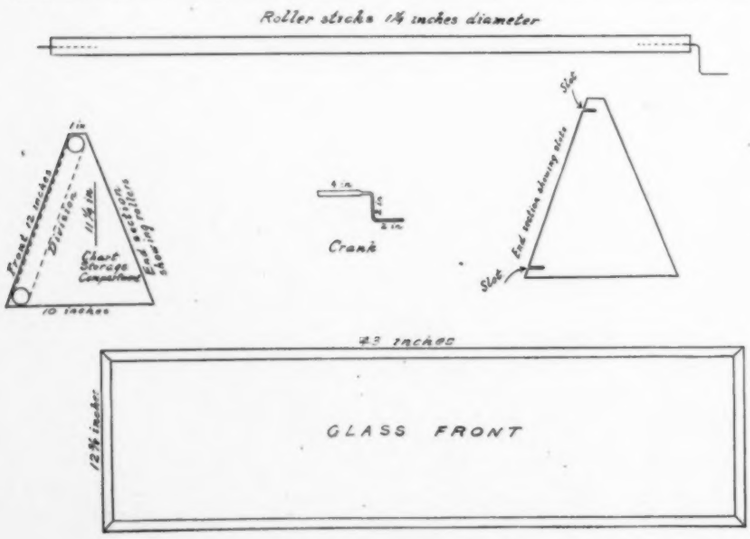
Bored into the slots and starting from the front edge is to be a ⅜ inch diameter hole; it to be filled after the rollers have been slipped into place, by a short piece of ⅜ inch brass rod. This has a three-fold purpose, it will not swell; it will keep water from entering through the slot; it will hold the roller rods in place.

The front cover is now fastened at top with brass hinges and at bottom with hooks and screw eyes. The chart case is now ready for varnishing and to be fastened by means of hooks and screw eyes to the cabin trunk, or to a stand.

By running a dividing partition down back of the rollers, as per diagram, the case becomes also a place for the convenient storage of charts.

At night a light may be placed in the broad base of case, by means of which the chart can be seen and read nicely, ventilation being provided for by boring small holes through the bottom and the top, the latter to be protected from spray.

In placing the chart on the roller wind the lower crank toward you and the upper crank away from you, having the chart against the glass. To keep the chart taut bore four holes in the end of the case around the crank; the holes not to go through. When the cranks are wound up tight slip a snug-fitting brass peg into one of the holes to prevent the roller unwinding.



Parts of the chart holder described.

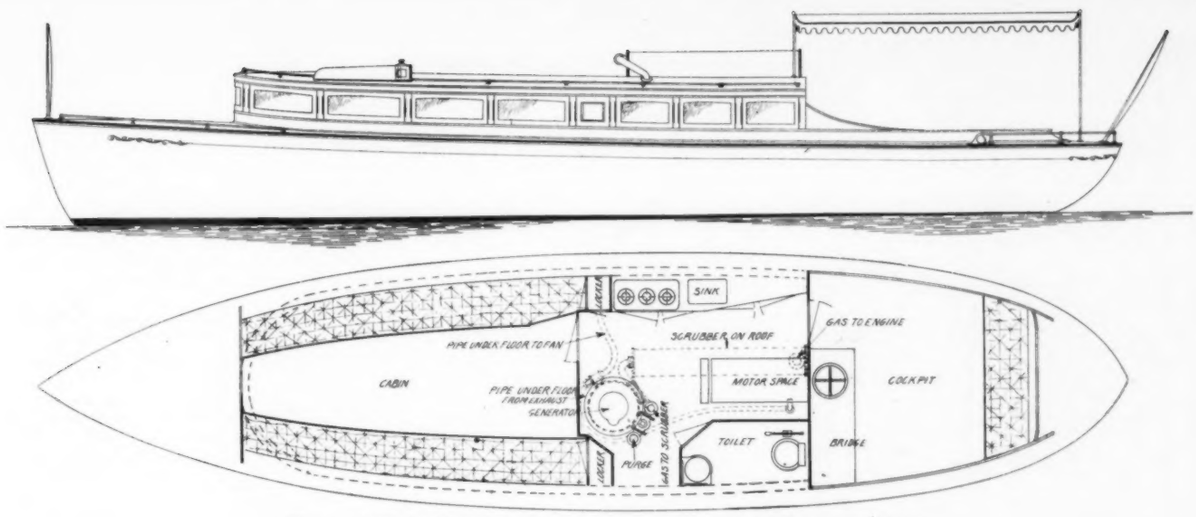


Fig. 1. Launch Marenging, 40 x 9 feet, 25 h. p. motor and gas producer.

Producer Gas for Motor Boats.

The Fields in Which the Producer Should Prove Economical. The Effort to Obtain a Cheaper Fuel than Gasoline.

By H. A. Kimber.

PRODUCER gas power has been commanding the attention of the marine public for the past four or five years and the present American activity in this line makes timely a discussion of the merits of this system for working boats and small pleasure craft.

Competition in operating boats of almost all descriptions has now reached a stage where economy is an absolute necessity, it being practically a case of the survival of the fittest. Efforts have been made along various lines to economize in the space occupied by the propelling machinery and also in the weight required by such machinery, and the labor for operating the same has been reduced to a minimum, but there still remains a large field for the conservation of the energy contained in the fuels, and up to the present writing the gas engine and the gas producer lead all competitors in this line. It is recognized by the engineering profession at large that these two factors, working in conjunction, far surpass the best efforts of the steam engine and boiler. Rapid advance has been made in the development of both large and small units for stationary service and the results obtained have confirmed the foregoing views.

Gasoline engines now being extensively used for the propulsion of a large variety of vessels, not only as prime movers, but as auxiliaries to sail power, but the high cost of gasoline as a fuel limits its use to engines of comparatively small units. Therefore, in order to obtain the greatest economy in operation when utilizing the internal combustion engine, it has become apparent that a cheaper source of fuel supply will be necessary, and hence the best efforts of a number of engineers have been turned toward the adaptation of the gas producer to marine usage. A number of obstacles have had to be overcome, among which were the excessive weight and space occupied by the apparatus. By close study, it was found that the former difficulty could be overcome by the use of better materials and the application of more scientific principles in the gas producing part of the equipment and washing and cooling devices, so that at the present time the gas power plant for marine service occupies enviable position in the following particulars:

First. The weight of the plant is not over three-quarters that of a similar steam equipment.

Second. The space occupied is only from one-half to three-quarters of that required by a steam plant.

Third. Absolutely no fresh water is required, either for the producer equipment or the gas engine.

Fourth. The fuel consumption is not more than one-half that of a similar sized steam plant, resulting in smaller bunker capacity and increased cargo space and weight; or if the same bunker capacity is supplied as for a steam plant, double the mileage can be covered by the gas-propelled boat.

Finally. The gas producing apparatus, whether built for bituminous and anthracite coal, or for anthracite coal exclusively, can be readily adapted to almost any condition. For instance, as will be seen by the accompanying plans, the scrubbers can be placed in such locations that they do not occupy valuable space in the hull, and the producers can be arranged either athwartship or fore and aft as the case may demand.

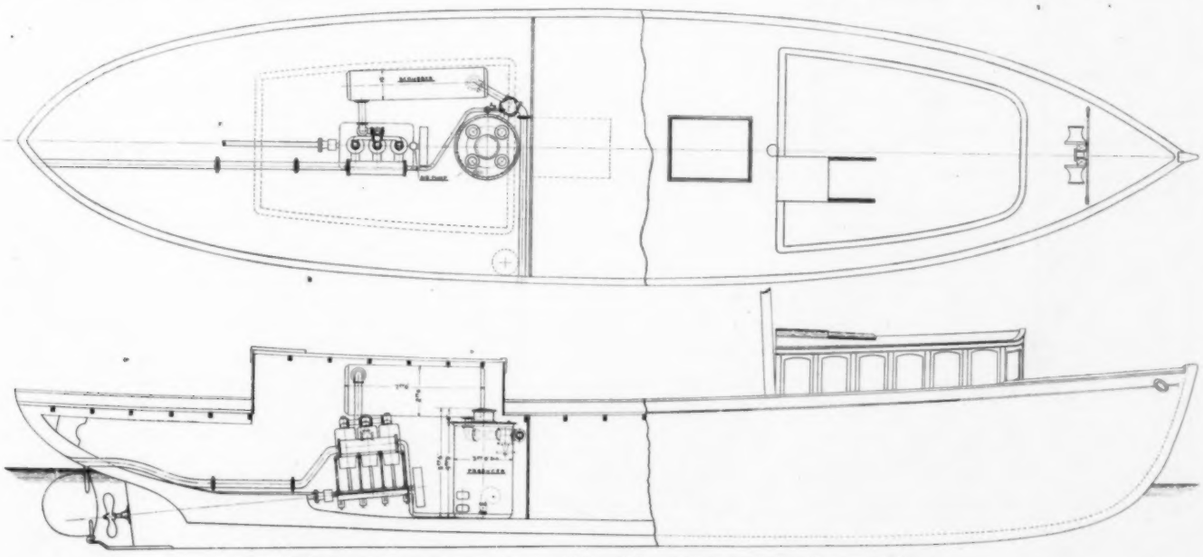


Figure 2. Cargo boat, 60 x 14 feet, with 50 h. p. motor and gas producer.

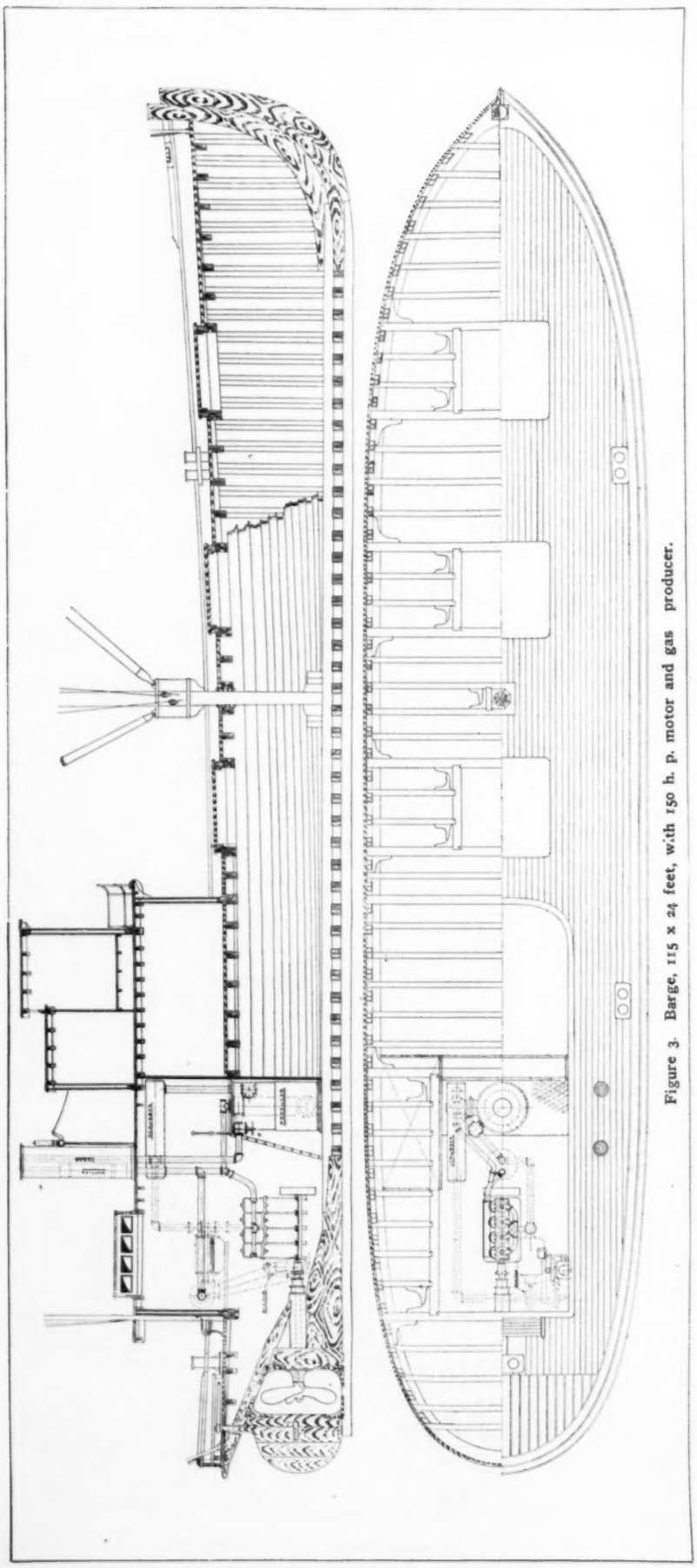


Figure 3. Barge, 115 x 24 feet, with 150 h. p. motor and gas producer.

At the present time there are thousands of motor boats on the waters of the United States, and this number is constantly being augmented. Cruising motor boats are becoming more popular every day and their size and equipment are being added to with resultant greater comfort to the owner. For many of the smaller boats, the installation of a producer gas power plant would be a physical impossibility on account of the very limited space available, but for a cruising boat it is another matter and a producer gas plant may be installed upon a good sized cruiser without any serious sacrifice of space and with a large saving in the cost of operation, together with greatly increased safe y.

The launch Marenging is an interesting example of what can be accomplished by the installation of a gas producer in a motor boat of moderate size, and the successful operation of this vessel has established beyond any question, not only the economy, but the reliability, of this method of boat propulsion. This boat is owned by H. L. Aldrich, proprietor of "International Marine Engineering," and is forty feet long over all, with nine feet beam. It was built by the Truscott Boat Manufacturing Company and is equipped with one of their four-cylinder, 5¼ ft. x 6 ft., four-cycle engines, developing about 25 horsepower with producer gas. A reversing clutch is used for driving the shaft either ahead or astern and is operated from the bridge by a wheel mounted concentrically with the steering wheel. The throttle and ignition are controlled from the same location.

The producer is of the suction type built by the Marine Producer Gas Power Company, 2 Rector Street, New York. It is placed just forward of the engine as shown by the accompanying plans. The gas, after leaving the producer, ascends to a horizontal scrubber, placed on top of the cabin, where it is washed and cooled by passing through sprays of sea water, and thence it goes to the engine. Anthracite pea coal is used in the producer and is carried in canvas bags for convenience in handling. This launch has been in regular service for about sixty days and has run over 2,000 miles around New York harbor and Long Island Sound. It is covering between 850 and 900 miles with a fuel consumption of one ton of coal, and is giving excellent service. Comparing the cost of operation of this boat with a similar craft in which gasoline is the fuel used, the producer gas propelled boat has the decided advantage of requiring only about one-seventh the expenditure for fuel which the gasoline boat requires.

Pleasure craft of this description, however, are not usually run a sufficient mileage during a season to make the cost of fuel a subject of vital importance to the owner, so that if this were the only point in question, it would hardly be a large enough factor to warrant the installation of such equipment. There are other things to be considered, however, which carry greater weight, and the most salient one is that of safety. Bituminous or anthracite coal can be carried with comparative safety and the bulk or weight of these fuels is not much greater than gasoline, the former containing about 13,000 British thermal units per pound and the latter 16,000. There is no danger from explosion when producer gs is used and lights may be carried when and where desired, while with gasoline, the record of fires and fatal accidents speaks for itself. The last Bermuda race furnished a case in point, and the Nereides did not have a light aboard during the entire trip, on account of leaky connections to the fuel supply tanks filling the cabin with gasoline fumes and overcoming the navigator of the boat. It is therefore a question to be decided individually by each owner whether the additional cost of the producer gas equipment and sacrifice of some space in the boat is justified by the increased safety and saving in fuel cost.

The greatest field for the use of producer gas in the propulsion of vessels, however, is

on working boats and freighters, where every dollar saved means a dollar earned by the owner. Boats of this class are usually operated continuously from one week's end to the other during the season, and in many cases during the entire year. A saving of six-sevenths of the cost of fuel would in many cases mean a saving of the greater part of the cost of operation and when the additional advantage of safety from fire is considered, it would seem that the general adoption of gas producers on boats of this class would be a matter of but a comparatively short time.

A few typical installations of gas producer plants in working boats have been selected for description, with a view to showing the very limited space required by the gas apparatus in addition to that occupied by the engine, and its general applicability to such service. In fact the space required is considerably less than a steam plant of equal power, and there is a saving in weight which is not to be dispised.

The first cargo boat shown (Fig. 2) is a vessel 60 feet long by 14 feet beam. A gas engine of 50 B. H. P. is shown, connected to a 50 h.p. anthracite coal suction producer. The producer consists of a cylindrical steel shell, lined with brick. A shaking grate is provided upon which the fuel rests. Suitable cleaning doors are located above and below the grate for the removal of ashes, which can be done while the engine is in operation. A coal charging hopper is placed on the top head and is arranged with an air lock excluding air when introducing the fuel. The gas off-take is situated near the top of the producer where suitable connections are arranged leading to the scrubber and purge pipe. The purge pipe is open when blowing up the fire preparatory to starting up and also when standing idle. It has been found in practice that the consumption of fuel during "standbys" is very small, much less than in steam plant.

A horizontal scrubber for washing and cooling the gas is slung from the carlins of the engine room roof. In starting the plant a small hand fan is used for blowing air through the fuel bed, until the desired temperature is obtained, when the gas will burn at a small test pipe near the engine. This operation requires about 15 minutes time, after which everything will be in readiness for a start. The engine is then started with compressed air, and the gas is then drawn through the system by the suction stroke of the engine. It has been found in practice that the power consumed in this operation is a negligible quantity. It is not necessary to coal up more than once in three or four hours, and the manipulation of such a plant is the acme of simplicity and does not require expert attendance. The boat shown would probably do 12 or 13 miles per hour and at full speed the coal consumption should not exceed 60 pounds per hour.

Figure 3 shows a barge 115 feet long by 24 feet beam equipped with a power plant capable of developing 150 B. H. P. The engine shown is of the four-cylinder, four-cycle reversing type and would be started in either direction as desired, by the use of compressed air. The producer equipment differs from those described in the foregoing, in that it is designed to use bituminous or anthracite coal. The method of generating the gas is somewhat different from the anthracite suction type, the air for combustion being introduced at the top of the generator instead of at the bottom, it having previously passed through the economizer. By this means any tarry matter given off by the fresh fuel charge passes down through the hottest zone of the fire and is converted into a fixed gas. It is absolutely essential for the successful operation of gas engines that the gas be free from tar, otherwise the valves of the engine will become clogged and refuse to operate, causing endless trouble and annoyance. From the producer the gas passes through an economizer, thence to the scrubber, the eliminator box

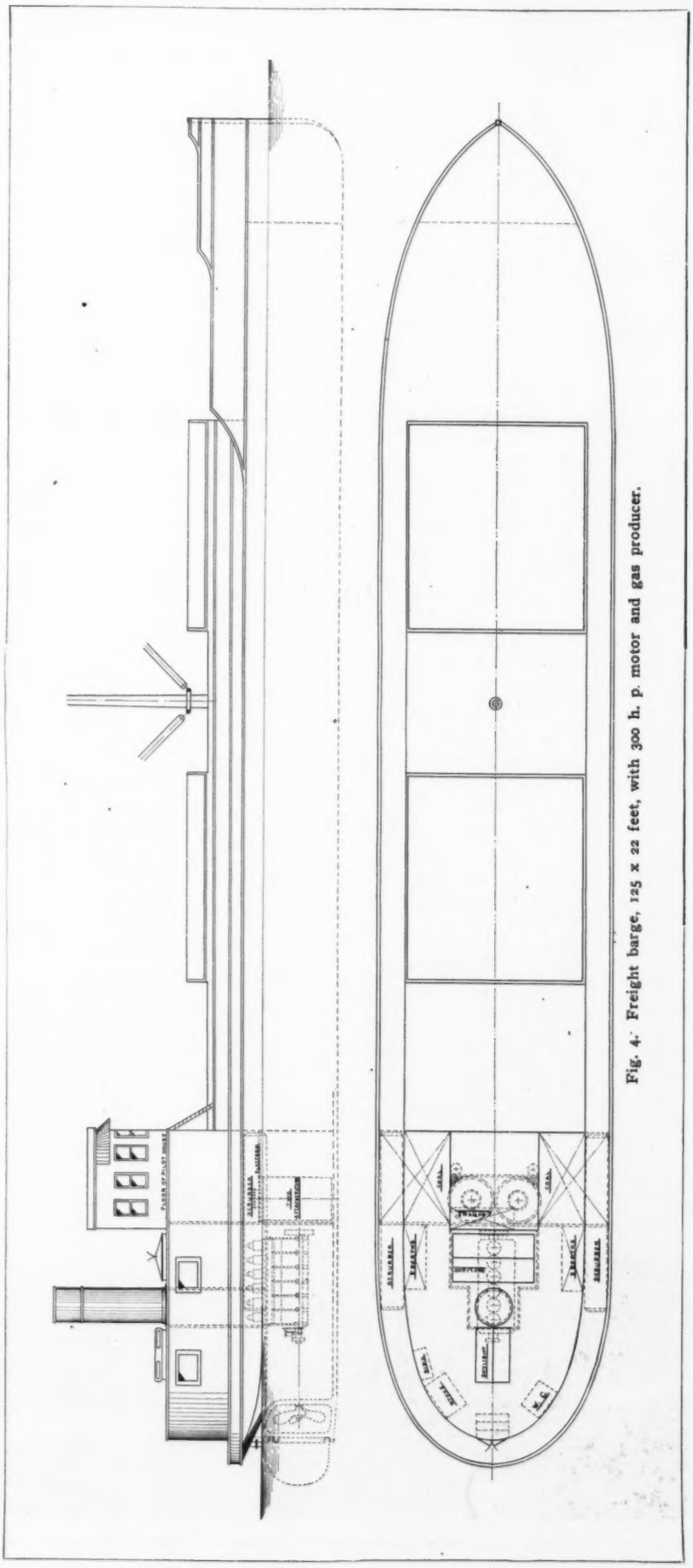


Fig. 4. Freight barge, 125 x 22 feet, with 300 h. p. motor and gas producer.

(for entraining any water carried over from the scrubber) and through a suction fan. This fan is used for "blowing up" the fire after a standby and is operated by small auxiliary engine. When the main engine has been started, the auxiliary can be stopped. This barge should be capable of running 10 miles per hour when powered as shown, and the fuel consumption at full speed, should be about 170 pounds of coal per hour.

The last illustration (Fig. 4) shows a barge 125 feet long with 22 feet beam, the engine and producer equipment called for being capable of developing 300 B. H. P. The engine shown is of the six-cylinder, single or double acting, four-cycle type, starting and reversing with compressed air. A small auxiliary engine in the engine room furnishes power for driving the exhausters, which form part of the producer plant, and if desired, also produces current for electric lights. The producer equipment consists of two down-draft generators, two horizontal wet scrubbers, slung under the deck, and centrifugal exhausters. The operation of the producer plant is similar to the one described with the preceding boat, and either bituminous or anthracite coal can be used as desired. It will be noticed that the space occupied by the machinery in all of the foregoing vessels is very small. With 300 h.p. for propulsion, a speed of 12 miles per hour should be attained, and the fuel consumption would not exceed 330 pounds of coal per hour.

In conclusion, it will not be amiss to call attention to another large field for gas power, viz: as an auxiliary for sailing ships. An excellent example of this application is shown by the auxiliary Carnegie, which has recently been launched. This vessel is being equipped with a 150 B. H. P. Craig gas engine and a suction producer built by the Marine Producer Gas Power Company. It is intended to use the auxiliary power for maneuvering near shore, or for propelling the vessel in the event of being becalmed. To be able to make headway, in either wind or calm, is invaluable for sailing vessels, as has been demonstrated by such examples as the R. C. Rickmers, an auxiliary coasting vessel, which has proven herself an immensely profitable ship due to her ability to make quick voyages in spite of adverse winds or calms. Again in many instances, the possession of cheap auxiliary power would eliminate the necessity of obtaining the assistance of a tug boat in entering or leaving a harbor.

The internal combustion engine has demonstrated beyond question that it is a reliable servant, and in conjunction with the gas producer its many advantages will force its adoption by vessel owners who desire the largest returns from the investment.

Byrossl--Tender to Joyette

THE power boat Byrossl was designed especially for service as a tender for the Sonder class boat Joyette and is interesting, as the design was very carefully worked out by her owner and designer, Mr. Charles D. Mower, to fulfill the special requirements necessary for this service.

The present conditions of yacht racing make it almost necessary for every racing yacht to have a power tender for towing, carrying spare sails and gear and for use by the owner as a general utility and dispatch boat. To meet these requirements a boat must be a sufficiently good sea boat to face any condition of wind and sea. Must be quick and easily handled and above all else must be as absolutely reliable as it it possible to make a power boat.

Byrossl meets all these requirements and at Marblehead during the Sonder class trials and final races she was out in the open in all weathers often with a large party on board and her fine performance and speed both alone and with Joyette in tow attracted much favorable comment.

In design the hull is of the navy cutter type with straight stem, square stern with rudder hung on the transom, good freeboard forward and a graceful sheer. The hull is well turned and yet powerful and she at once gives the impression of power and ableness.

The engine is placed amidships under a low trunk cabin where it is effectively protected from the weather. This location places the weight of machinery where it should be to make a good sea boat and makes the engine accessible, which is almost equally important. The fuel tanks are under the seats in the forward cockpit and with three or four persons in the after cockpit the weights are so distributed as to give the boat a very easy action in a seaway. The cabin allows the installation of a toilet and every facility for proper installation of the accessories to the engine, such as spark coils, storage battery charging box, etc.

The engine selected by the designer is a Sterling Model B, 18-25 h.p., four-cylinder, four-cycle motor designed for semi-heavy duty service. The cylinders are 4⅜ inches bore, 5½ inches stroke and on test the engine developed 23 h.p. at 600 r.p.m. In the boat it turns a 21 inch x 24 inch propeller up to 650 revolutions while the average speed at which the engine is run is from 575 to 600 r.p.m. At 600 r.p.m. the speed is slightly over ten statute miles per hour. The engine is the regular stock model and is fitted with Breeze carbureter and Wizard magneto and has given absolute reliability.

The six-foot transom in the engine room affords a place for a man to sleep if occasion should require and gives storage rom for engine tools, spare parts, etc. The cabin is lighted by electric lights and outboard connections are provided so that electricity is used for the side and evening running lights.

The main steering wheel is located amidships at the forward end of the after cockpit and the spark and throttle controls of the engine are located just under the steering wheel so that the boat can be operated with perfect ease by one man. An auxiliary steering wheel is placed in the forward cockpit, but this is seldom used.

In appearance the boat is very smart looking as she is black on the topsides with light green underbody and a white boottop. Two oak chafing strips and a gold stripe show her sheer effectively and to good advantage and a finishing touch is given by the plates on either bow with the owner's private signal in colors within an oval moulding of rope design in gold finish. The bright work of oak and mahogany and polished brass fittings complete the general smartness of finish.

In many details the boat shows careful study on the part of the designer, as instanced by the placing of the towing bitt as far ahead of the rudder as possible to facilitate steering when towing. The compass is placed just forward of the steering wheel and under a glass plate in the top of the cabin trunk where it can easily be seen by the helmsman. An electric light is so placed that the compass card is clearly lighted for night work. The reversal of companion slide is done to give headroom over the flywheel of the engine to facilitate cranking and to give easy access to forward cockpit.

A door in the after bulkhead gives easy entrance to engine room from the after cockpit. When both doors are closed all noise from the engine is effectively deadened and as there is practically no vibration, owing to a specially designed engine foundation, and no noise of exhaust, it is a real pleasure to be on the boat when she is running.

The seaworthiness of the boat was proven on her initial trip, which was around the Cape from Boston to New York, in the middle of April, in charge of her designer. And in spite of fog and bad weather the trip was made in less than two days, at an average running speed of close to ten miles.

The boat is particularly well adapted for day parties and can accommodate as many as fifteen persons very comfortably.

The dimensions of the Byrossl are as follows:

Length over all, 30 feet; length waterline, 29 feet; breadth extreme, 6 feet 9 inches; breadth load waterline, 6 feet 1 inch; draught extreme, 2 feet 6 inches; draught to rabbet 1 foot 2 inches; freeboard bow, 3 feet 6 inches; freeboard stern, 2 feet 2 inches, freeboard least, 2 feet 1 inch; displacement, 5,000 lbs.

Byrossl under way with cockpits full. Her plans and lines appear on page 39.

Inland Waterways Improvement.

The Bay Head to Cape May Canal.

By Chester L. Wynn.

PROBABLY no state or principality in the whole world is striving to afford better waters solely for pleasure craft than New Jersey is in her projected inland canal which will follow the coast line from Bay Head on the north to Cape May on the south, a distance of 117 miles. It is designed especially for motor boats and other small craft and has already been surveyed and opened up for some distance from both ends.

The completion of the canal will furnish a most useful and serviceable waterway. In order to pass down the coast from New York harbor to Cape May it will then be necessary to run outside in the open ocean a distance of only 27 miles, between Sandy Hook and Manasquan Inlet. This stretch can be covered in between three and four hours and presents no serious obstacle even to comparatively small craft, and the remaining 117 miles to Cape May will be through the inland waters.

Undoubtedly this improvement will prove valuable in adding to the attractiveness and accessibility of all the seashore resorts which of recent years have developed to a very great degree a fondness for motor boating and the navigation of the hundreds of bays and rivers. The chief use of the canal will be for motor boat inter-communication between the many resorts, and all along its surveyed banks clubs have sprung up with an aggregate membership reaching into the thousands.

The route of the waterway lies through open bays and navigable thoroughfares which are natural highways. About four years ago the mayors and leading business men of the various resorts saw that these could not be dedicated to private corporations, thus precluding their deepening by private enterprise, and began an agitation which led to the work being undertaken by the state. In 1907 $5,000 was appropriated to cover the cost of a survey of the proposed route, and the next year $75,000 was set aside to be expended on a part of the construction work. Next November another $50,000 becomes available for the work and at least $50,000 will be appropriated every year until the canal is completed. It will cost in all about $300,000.

In plotting the canal the engineers followed the deep waters as much as possible, but when these made a too circuitous route they surveyed for cuts through the marshy divides. These add considerably to the expense of the canal. The northern portion of the waterway extending from Bay Head to Cabbage Thoro, on the southerly shore of Great Bay, a distance of about 50 miles, lies maiply through broad open bays, but from Great Bay to Cape May it follows chiefly the winding thoroughfares which connect shallow bays and inlets, and it is in that stretch that the most work will have to be done.

One can at present navigate a motor boat of ordinary draft from Bay Head to Cape May over the inland waterways, but it is an extremely lucky person that can run the length of the course without being hung up for hours on the bars and flats. In about half of the inlets and sounds the "bulkheads" made by the meeting of the tides make them impassable except for a couple of hours at high tide From Bay Head to Great Bay the present day motor boating route is over the same course as the projected canal with the exception of at Herring Island and at the mouth of Great Bay.

The adopted and present day routes begin at the railroad bridge at Bay Head where the proposed canal from Manasquan Inlet to Bay Head will connect with the mouth of the Metedeconk river. From that bridge the adopted route leads inside of the beach through the channel to the east of Herrings Island rather than around the west side of the island on the present marked channel. From Herrings Island, the course runs under the Mantoloking draw bridge to Swan Point. This section of the canal has already been completed. It is 7 feet deep and 100 feet wide and almost continuous, and heavy dredging was required.

From Swan Point the route takes a southwesterly course into Barnegat Bay to Mosquito Cove, a reach of four miles, where it swerves due south, passing close to the mouths of Applegate Cove and Goose Creek to the waters of the Toms river. Here a port tack must be taken to round Good Luck Point, and the thirteenth mile of the course is ended at the Barnegat Pier draw. The channel is not more than an eighth of a mile from the western shore at that point and it then gradually recedes to a half mile at Cedar Point, 4 miles further along. There it turns southwesterly through the deep waters of the bay to a point three-quarters of a mile off Waretown Landing.

At any point between Toms river and Waretown the pleasure seeker is afforded opportunity for a day or a week's stopover in the best recreation grounds in Jersey. In these waters the best fishing of the coast is found; in season, the western shore swarms with gunners and the continual clatter of their guns; for sailing and motor boating, the waters of Barnegat Bay are of the best.

From Waretown Landing the course crosses to the southeast to Lovelady Island, from where it follows the beach closely to the shoals known as the Bulkheads off Surf City. These shoals are only passable for drafts over 2 feet at high tide and considerable dredging must be done. Crossing them the channel leads through the Cedar Bonnets from where a straight cut is made across the bar to the north side of Reed's Island. It then turns due west for a mile to Mud Cove and thence follows closely the west coast of Little Egg Harbor for four miles to Long Point. From here a two-mile cut is made across the bay to Beach Haven and then the inner line of the beach is hugged for 4 more miles to the north end of Tucker's Island. This route was chosen because the present depth of water being over ten feet makes dredging unnecessary, although many skippers prefer other routes that have already been staked in the various thoroughfares.

From Tucker's Island the course leads southwesterly through the channel of the Little Egg Harbor and into the Shooting Thoro, from which it is diverted to clear the shoals inside of Island Beach. It then cuts across Great Bay to Cabbage Thoro.

The long stretch of shallow bays and narrow thoroughfares begins at this point. The present course for motor boats out of Great Bay is around Egg Island and into the Great Thoro, but it was decided by the surveyors that by cutting through Cabbage Thoro they would not only save dredging but also cut off three miles from the present route. The usual route from Island Beach to Brigantine and Atlantic City, through the crooked thoroughfares and mud flats is tortuous, to say the least. It leads to the west of Pullen's Island into Brigantine Inlet and Channel to Grassy Bay, which is the shallowest of the entire route and is only passable at flood tide. After getting out of this, Oyster Thoro and Main Channel must be crossed before the deep waters of Absecon Inlet are reached.

The projected waterway will shorten this winding course by several miles, as it makes almost a straight cut. From Pullen's Island it will lead a mile and a half up Mud Thoro where a thousand foot cut will be made through a marshy divide to the Brigantine Channel. A mile up this to Hoffman's Creek, from which Somer's Bay is crossed to the Brigantine drawbridge. The next two miles through Wading Thoro are very shallow, less than 2 feet at mean low water. Very little dredging is needed to make the 3 miles through Eagle Bay and Golden Thoro, past Peter's Beach, the required depth and then the route for the next 18 miles, back of Atlantic City to below Ocean City, needs only a minimum of work upon it. At five different places "bulkheads," caused by the tide, must be removed and these are the easiest of engineering problems. Along the Beach and Inside Thoros back of Atlantic City the waters now swarm with motor boats of all drafts. The Great Egg Harbor makes up part of the 18 miles of deep water to Peck's Bay below Ocean City and from there the present going is particularly bad. In surveying the canal through this section the engineers cut across marsh after marsh in order to do away with the present crooked "horns" that are marked through the thoroughfares to Corson's Inlet and Ludlam's Bay above Sea Isle City. From Ludlam's Bay a short cut is taken across the marshes into Ludlam's Thoro and a mile down that stream another cut is made to Scragly Creek in order to avoid a couple of rough tacking through the narrow reaches. For the next 15 miles through Townsend's Inlet, Ingram's Thoro, Great Sound, Great Channel, Hereford Inlet and Grassy Sound, which lie back of Avalon, Stone Harbor, Anglesea and Wildwood, the yacht clubs have staked out channels which give an 8-foot depth most of the way.

From 600 feet below the drawbridge at Holly Beach to Seawell's Point the new canal has already been completed and staked in the regular manner. The former route to Cold Spring Inlet was a very roundabout one, but the new cut makes almost a straight line across the marshes into Jarvis Sound and thence into Cold Spring Harbor, which is the Cape May motor boating shelter.

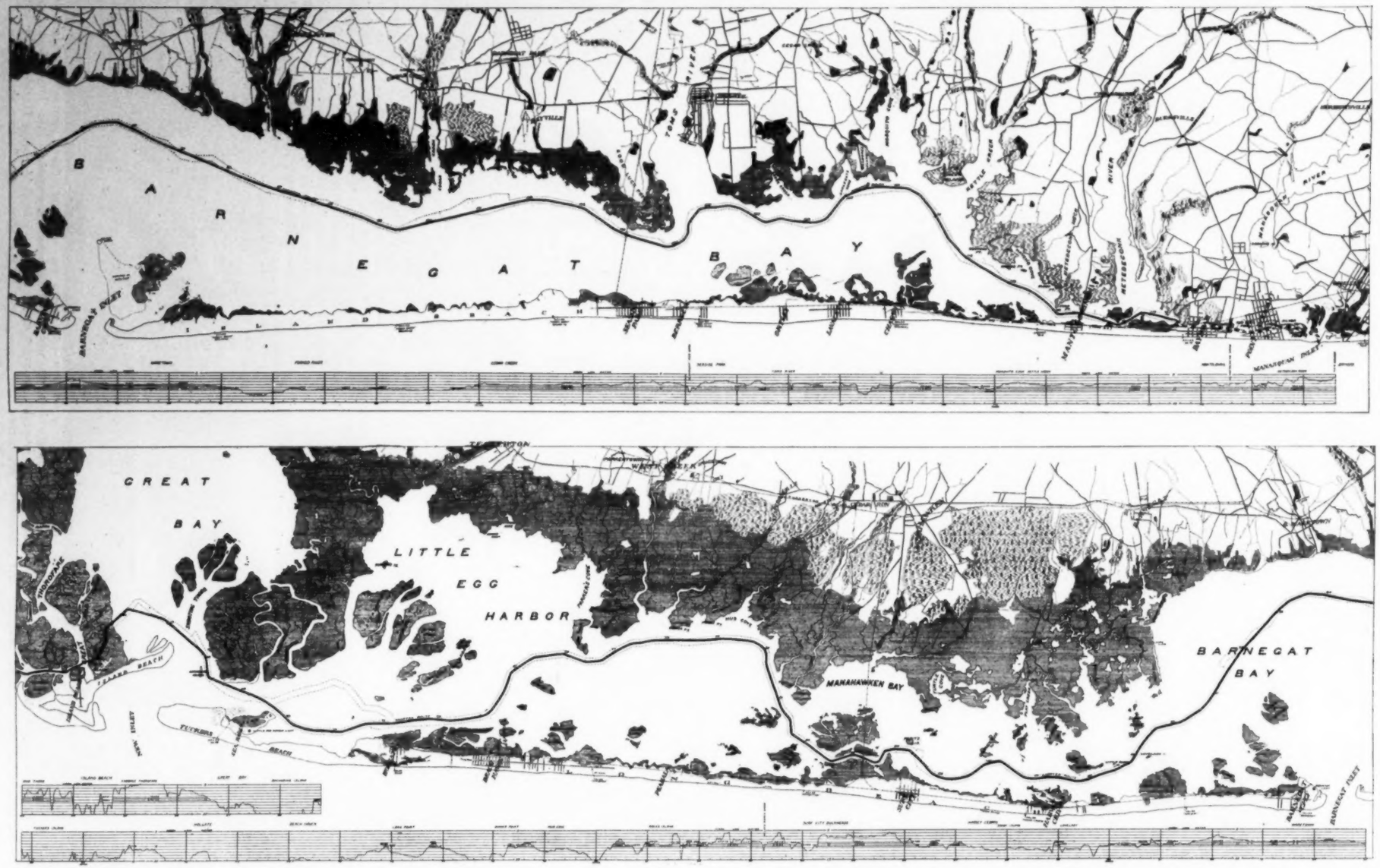
Hampton Roads to Albemarle Sound.

AN important link in the Atlantic Coast Inland Waterway is that which provides a channel from Hampton Roads, beginning at Norfolk, into Albemarle Sound—the passage from Virginia to North Carolina waters. Here the motor boatman voyaging southward finds that he has the choice of two routes, each with a channel eight feet deep.

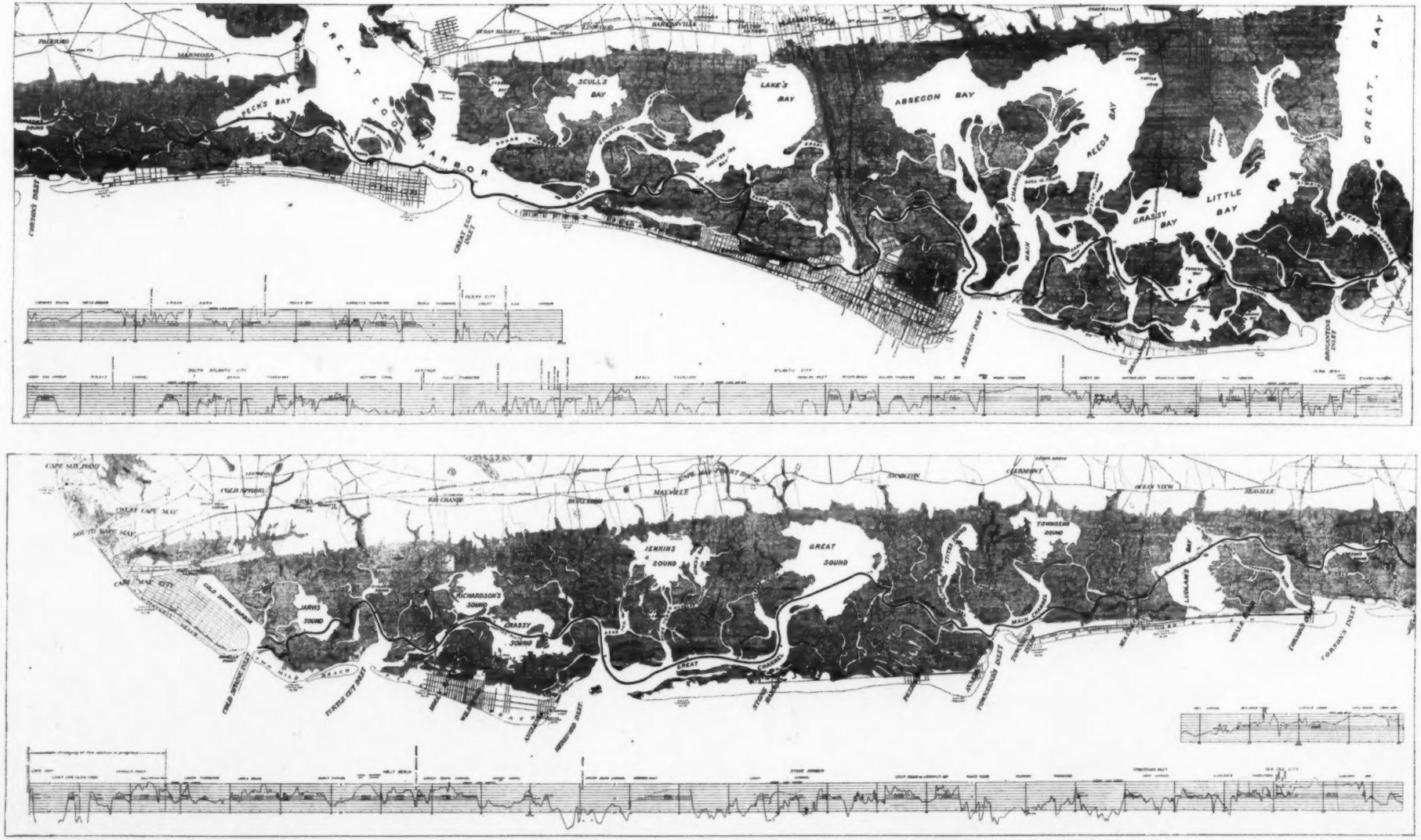
The better known of the two is the Dismal Swamp or Lake Drummond Canal. Starting south from Norfolk, this canal goes up Elizabeth river, truning west up Deep Creek. Thence the cut is S.S.W. passing through Wallastown, Va., and within two miles of Lake Drummond, the remarkable body of water in the center of the Dismal Swamp. Beyond Lake Drummond the canal turns S. S. E., and follows down the Pasquotank river to Albemarle Sound.

The alternative route is the Albemarle and Chesapeake Canal. This also follows the channel of the Elizabeth river south from Norfolk. A cut of ten miles to the eastward connects with the North river, which flows southward into the northern end of Currituck Sound in North Carolina. Another short cut from the Sound across the neck of Currituck peninsula brings the cruiser into Albemarle Sound.

A deeper waterway may be cut paralleling these two canals and lying between them, following the Cooper's Creek route, which has been surveyed and favorably reported on by the government engineers.



The Bay Head to Cape May Canal.—The charts on this and the next page overlap to a slight extent to make the connection clear. They are to be read beginning at the right on the upper one and from the left-hand end of that one to the right-hand end of the one next below. See article on page 17.



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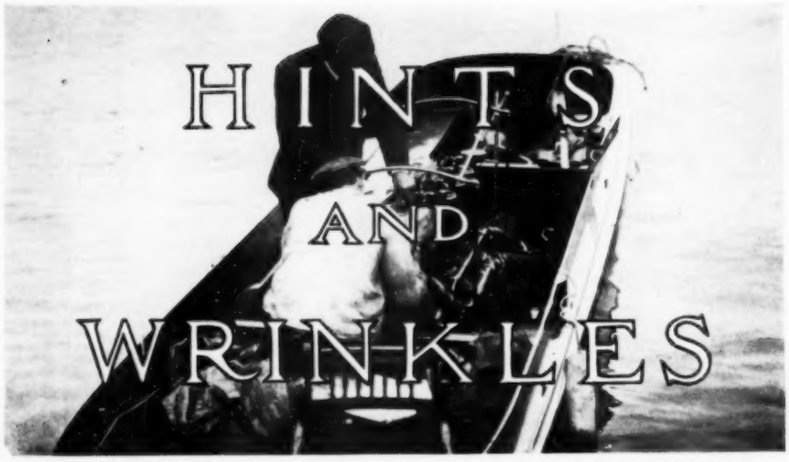


Making Starting Easy.

If one would start his motor "on the spark" he should speed his motor up, just before stopping it, by opening the throttle wide. Then if the spark is cut off a full charge is left in a cylinder to be ignited when another start is to be made.

* * *

Ofttimes Repeated But Still Good.

When leaving the boat at night, or for any length of time, make it a practice to shut off the gasoline supply. If this is not done, and there is a leak, or a flooded carbureter, a fire may be caused by someone carelessly tossing a burning match.

* * *

Keep Oil Lamp Draught Holes Open.

When an oil lamp gives trouble by frequently "going out," see if the draught holes in the top are not clogged with lamp black. To give the best service an oil lamp should be kept scrupulously clean.

* * *

Applying Wire To Terminals.

There are two ways of doing almost everything and this is especially true of fastening battery and coil terminal wires. One way is wrong and the other is to twist the bare end of the wire around the terminal as the hands of a clock move and then tighten up the nut. The reason for this is that the screw thread is "right-handed," and the tendency of the tightening nut will therefore be to twist the wire around the terminal tighter than it was. Should the wire be twisted the other way the nut would tend to untwist it and it would slip under the nut and very likely get a very poor "hold."

* * *

Back-Firing Again.

One of the most dangerous of the "tricks" that a gasoline motor plays is back-firing through the carbureter. Within our personal knowledge two rather serious fires, in which valuable boats were damaged, occuring during the past two months, have been due to this cause—and to the contributory cause, a dirty bilge or engine fan. Back-fires usually result from too weak a mixture which burns slowly in the cylinder and is still burning when the inlet valve opens again with the result that the gas in the intake piping is ignited by it. The oovious remedy for this kind of a back-fire is so to adjust the carbureter that the mixture will not be impoverished at low motor speeds. If no amount of adjustment of the carbureter will cure the trouble, get a new one.

* * *

A "Domestic" Carbon Remover.

We recently learned of a novel method of cleaning carbon from cylinders. The device employed is a common housekeeper's metallic wash rag, made of a series of wire rings interlocking with one another. The kind preferred is that in which the rings are composed of two coils of wire, one coil overlapping the joint. Another kind, not so good, is that which has no wire overlapping the joint and can, with little effort, be pulled apart. One of these metallic articles dropped into a cylinder and the other three cylinders made to run about ten minutes, completely removes the carbon, it passing out through the exhaust.

* * *

Fitting or Removing Studs.

It is occasionally necessary to fit in a stud or remove it from some part of the motor's mechanism. If pliers be used they either damage the thread or the plain part of the stud. If the stud be tight and has to be removed, it is often impossible to do this by means of pliers. A better way is to use a pair of lock nuts which are run on the top side of the stud thread and locked up together, two wrenches being used for this purpose. If the stud has to be removed the bottom nut is then turned by the wrench in a direction counter clockwise when looking on the top of the stud. If the stud has to be tightened the top nut must be turned in the clockwise direction. Another method that may be employed when fixing studs in place is to use a rather deep nut with a set screw; run a few threads of the set screw into the nut, and then if the nut be screwed on the top of the stud and held by a wrench while the screw is run down to lock it, the stud may be run into place by operating the nut in a clockwise direction.

* * *

Valve Springs May Weaken.

The weakening of the valve springs because of "set" or a loss of temper is a possible cause of lost power in a motor. A weak spring makes the action of the valve sluggish and has the effect of a disturbance of the valve's "timing."

* * *

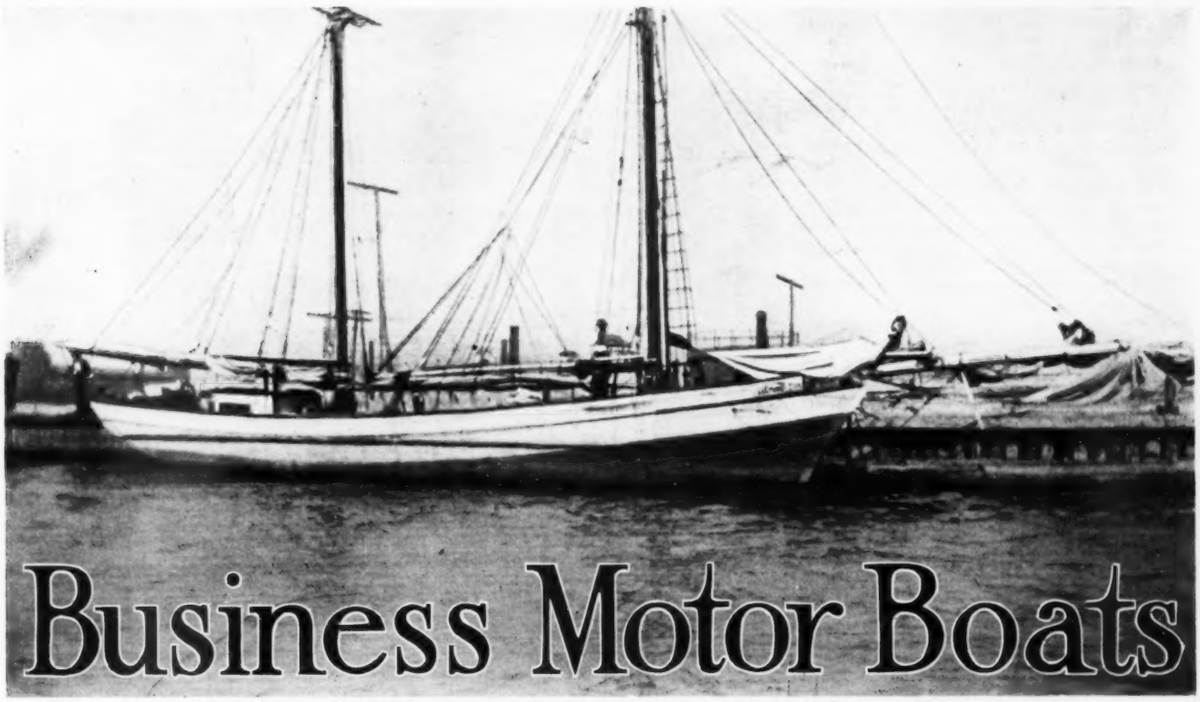
The Equipment of Skipper Drake.

While madly dashing along in the dark at a rate of almost four miles per hour in a home built 15-footer, Skipper Everett Drake, of South Boston, was recently boarded by a Boston harbor steamboat inspector. After the inspector had looked about and enumerated to Mr. Drake the law's requirements and equipment necessary for the lawful pursuit of the pleasures of motor boating, Mr. Drake headed sadly for the homeward mooring, and the next day he spent quite a little money buying the equipment declared necessary by the inspector. He is shown in the accompanying picture with his outfit, consisting of a bell big enough for a coasting schooner, a range light and running lights large enough for a battleship, a fog horn that works with a bellows and a mast to be stepped on his boat, if he can find room enough for it.

As Mr. Drake's boat is the size of a dory of three-quarters growth and looks as though it was heavily laden when all the safety appliances are aboard, especially when he flies the colors of the Columbia Yacht Club, in which the craft is enrolled. If Skipper Drake ever gets caught in a fog bank with his little boat and lets go with his fog horn and his bell all the shipping within hearing will seek for safety under the impression that a six-masted schooner is bearing down on them.

Skipper Drake and his equipment.

Skipper Drake's motor boat, which is equipped as the law requires.



Business Motor Boats

Stonehooker Island Queen. She has an 8 h.p. motor which drives her at five miles an hour with full load.

The Influence of the Motor on the Business in the Waters of Toronto Harbor. How Stonehookers, Fishing Smacks and other Craft Have Been Converted.

By C. H. J. Snider.

STONEHOOKERS, fishing smacks, towboats, even the weird craft that clears the weeds from the lagoons and channels—all have felt the influence of the invading motor, in the waters of Toronto harbor and its vicinity, on the north shore of Lake Ontario.

The second city in the Dominion has a huge fleet of gasoline pleasure boats, numbering at least 300, which is scarcely to be wondered at, seeing that it is the home of five thousand boating people and the headquarters for the pleasure craft that swim upon the smaller inland lakes of that section of Canada; but the extent of the grip the motor has gained upon commercial boating is rather surprising.

Of all the craft that ever floated, since Noah made the Ark, the Lake Ontario stonehooker comes nearest to that ancient model. There are stonehookers and stonehookers; some of them ex-yachts and graceful still in their lines; others simply little trading schooners that have survived the time when there was plenty of work for everything on the lakes, no matter how small; but the real unadulterated article is square at both ends; flat in the bottom, straight in the sides, and as much like a box as it is possible to make anything that will sail. And yet sail they must, for unlike the canalboats they resemble, the stonehookers must make their own way in open water, and they must make it in a hurry, too, if their owners are not to starve.

They are vessels up to a hundred tons burden, but usually handled by only two men, even the largest. They have a full schooner rig—three headsails, foresail and mainsail, and a pair of big gaff topsails. Their topmasts are long, so that clewing up the kites frequently saves taking in a reef. Their mainmasts are well aft, and their foremasts well forward, so as to make them handy in twisting about in small compass. They are of light draught, the largest drawing about four feet loaded and two feet light, and to give them a grip on the water they all have centerboards. In spite of their clumsy appearance they sail fairly well in smooth water, and as their voyages are not long they manage to dodge the rough and take advantage of favoring slants.

Their trade is gathering the rough granite "hardheads" or boulders, the flat layers of building stone, the little cobbles, and water-washed sand or gravel along the north shore of Lake Ontario. For all of this they find a ready market with the builders, paving contractors, concrete workers or harbor construction companies of the great and growing city of Toronto, or the smaller lake ports.

The stonehooker's business is peculiar in that he is alternately praying for no wind and cursing because there is not enough. To rake the stone from the bottom, or gather it from the lake beaches he needs smooth water and little wind, for he has to anchor close in on the shore, in the poorest of holding ground, while his flat-bottomed, flat-decked scow plies back and forth with the cargo. On the other hand, to move along the beach, or to reach the scene of his activities in the beginning, or to get his cargo to the point of delivery, fifty or a hundred miles away, he needs wind and needs it badly. Some of his trips are spun out to incredible length. He may leave Toronto to load hardheads under the Highlands of Scarborough, a favorite raking ground; get becalmed outside the harbor and not reach the Highlands, only ten miles away, till next day; start to load, and then be chased away by an angry beach owner ashore, and an angry squall out in the lake; run to Frenchman's Bay, ten miles further down, and then lie there a week, with brisk breezes making it useless for him to tackle shore work and flat calms succeeding them and making it impossible to leave port. Then when he does reach the loading ground and gets a load he may be twenty-four hours crawling into port with it, for it takes some breeze to drive a square ended box, loaded till her covering board is wet, with forty, fifty, or a hundred tons of granite or limestone.

They use all sorts of expedients to dodge the lack of wind. You will find, triced up in their rigging, thirty foot cedar poles, shod with iron points. These are called set-poles, and with them the hookermen will prod their weary way mile after mile, starting at the bow and slowly walking aft, pushing against the lake bottom with their poles. This means, of course, they have to keep in shallow water. Or, incredible as it may seem, they will scull those ponderous arks, with a great broad-bladed oar thrust through a pair of tholepins in the taffrail. Either poling or sculling is mankilling work, however, and an impossibility for long distances.

It was Capt. George Blower, of the Coral, who thought out the remedy. Steam stone-

Lillian, a pioneer auxiliary stone-hooker.

hooking had been tried and found wanting, for what the Maybird and Gordon Jerry saved in time they lost in wages and coal.

"Seems to me," said Capt. George one day in 1901, "one of them newfangled gasoline engines ought to do the trick for us. I could 'a' made three trips this week instead of one, if it hadn't been for lost time going and coming."

This, mind you, was when we yachting people on the lakes were as chary of gasoline auxiliaries as we were of smallpox, and sniffed at the man who wanted to install one as a "balcony sailor."

Capt. George figured he could put an engine in the Coral for $200; but even that was a big sum, when you came to think that many a season didn't pay expenses, and a thousand dollars earning meant a red-letter year. So he waited. Five years later they were rebuilding the Lillian, his brother Jim's boat. They had to put a new stern in her anyway, so with much debate they took the plunge, and installed a fifteen horsepower engine, in the winter of 1906.

Fishing mackinaw Beaver. She is 28 feet over all, and makes nine miles with her 8 horsepower motor.

They deserved better luck than they had. They were very simple sailormen, and they didn't know much more about the engine than what the agent told them. It kicked and missed and sulked and went and stopped and ran again pretty much as it pleased. It was in the spring, when rough weather makes the trips long, and there is usually wind and to spare. The Lillian only did "fair to middlin'" as the stonehooker men say; and meantime the new oak of her sternpost was swelling and swelling with the continual immersion. I don't know what happened, but finally the wood got a grip on the propeller-shaft like a pipe-wrench; and then of course as luck would have it, it fell calm, and they turned on the juice, and there was a fine display of fireworks, and the shaft came out of the mixup looking like an ice cream soda straw after a busy day at the druggist's counter. Capt. Blower took the engine out of the Lillian, and charged up the cost to experience.

But other hookermen had noticed that when it fell calm the Lillian got two stones to their one. What time the engine did run she could skiff right in along the beach, so close there was no need to send the scow ashore at all exploring. They could see whether there were hardheads, gravel, or angry farmers along the beach and act accordingly; if there was only one scowload there they could get it without all the trouble of letting go the anchor, lowering sail, hoisting sail again, and heaving up the mudhook. They could even load direct on to the vessel, without using the scow at all, with very smooth water and a flat calm, for her engine would get her clear; so the failure of the first experiment did not daunt all others.

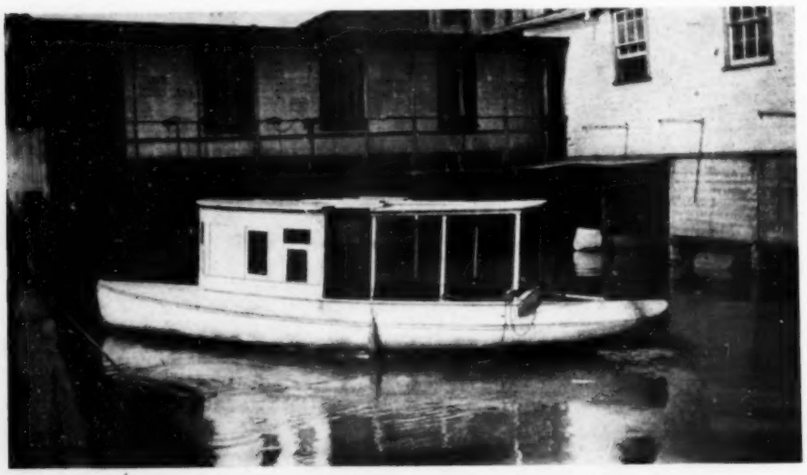
Coal oil motor boat Toronto, used for towing freight between the city and homes of summer residents.

Capt. Al Pear took the chance with the White Oak. She was only a little thing, and carried so small a load that it was hard to make her pay, if she lost any time; but her twelve horsepower engine made a new boat out of her, and although it was hard to drive her flat, square bows against any head sea, it solved the problem of the calms. The Island Queen, a sharp nosed hooker of twice the size, with a broad, flat stern with lots of room under it for a propeller, followed suit. Her skipper, Mike Rainge, had had to put up with the jollying of the fleet on account of her sluggishness in windward work and light airs, hitherto, but the tune immediately changed, and the Island Queen has been making and breaking records for good trips right along.

The stonehookers use the gasoline engine entirely as an auxiliary to date. The time may come when they will abandon sails, but it is not in sight. The operating expenses of sailcloth are at a minimum, when a crew has to be carried for loading and unloading. They are a frugal folk, the stonehookermen, and quite conservative, and they will stick to canvas as principal driving power while their trade lasts, but the gasoline auxiliary is revolutionizing their work, and if they are not driven off the lake by the strings of barges, towed by tugs, that are beginning to glut the market with stone brought in huge quantities from long distances, they will all have chug-chug machines in the afterhold ere long.

The Great Lakes have a style of fishing craft of their own—the "mackinaw boat," "mackinaw," or just plain "mack," as it is variously known. You will find this sturdy wave battler all the way from Thunder Bay to the St. Lawrence; from its name place, the Straits of Mackinac—usually called Mackinaw—to the Thousand Islands. A plain, serviceable working boat she is, and her general utility has been the cause of her widespread acceptance all over the chain of the inland seas.

There's a fleet of them around Toronto, on Lake Ontario. Bronte, a little fishing boat



Dominion Government errand boat Lillian; 30 feet long, with 7 h.p. motor.

Weed cutting launch Tickler, formerly used by the City Engineer for clearing weeds from the ponds and channels. She now does towing.

harbor west of the city, boasts sixteen of them; and as many more find shelter in Oakville, Port Credit, or Toronto Bay itself, when they are not setting or lifting their mile-long "gangs" of gill nets. Even those of Toronto Island seldom market their own fish. They find it quicker to send their catch of salmon trout, whitefish, herring or chub to the fish-market by train or ferry steamer, saving their energies for open lake work.

Up to five or six years ago, sailcloth and muscle were the sole propelling power of the mackinaws. They are rigged as a rule with two masts, the foremost right in the eyes of the boat, and somewhat longer than the mainmast. On each mast a gaff-and-boom sail is carried. On the lower lakes there is also usually a long bowsprit, on which a jib is set flying. There you have the complete rig of the mackinaw, usually about 600 square feet of canvas for 30 feet waterline. Under this they sail like witches, with any breeze. Being long, narrow boats, sometimes sharp at both ends and always having the rudder hung outboard, they are a little slow in stays; but their long keels and wooden centerboards, placed well forward, enable them to make good progress to windward, and their stone ballast, shifted from side to side of the centerboard trunk for each tack, lets them hang on to full sail as long as the wind doesn't lash the water into such a turmoil that they are in danger of swamping through flying spray; for they are only slightly decked in, and practically all the water they ship has to come out by pump or bucket.

It was not wind but the lack of it that brought about a revolution in the style of these lake fishing boats. It is splendid to shoot out from the harbor in early morning, with the clouds hanging low and spitting rain, three reefs in the mainsail, the jib stowed, and the whole foresail on her; but it is quite another story to stand up to the inboard end of a long white ash sweep, and pull mile after mile through the long lazy swell while the sun strengthens and turns sky and lake into molten fire above and below you; then to reach your net buoy, heave in over the roller in the quarter one, two, or three thousand yards of gill net, laden with floats along one edge, sinkers along the other, and flipping wriggling fish between; to "skin" the net of fish, flinging the good into the shallow wooden trays, and the bad overboard, to feed the clamoring gulls, the noisy mendicants of the lake; then to tug away again at the sweeps for a few more miles, while the net is paid out again, for the next catch; and after the last end is buoyed to once more man the sweeps and tug, tug, tug, at the other end, while the catch swelters in the bottom of the boat, and never a catspaw ruffles the serene folds of the slowly heaving bosom of the sleeping water.

Gasoline tug Coriene, used for towing barges across Trinity Bay. She is 30 feet long and has an 8 h.p. motor.

That is what drove the fishermen to gasoline. Capt. Wm. Ward, coxswain of the Toronto lifeboat crew, and Skipper Naish, of Port Credit, were the pioneers of the auxiliary idea. The mackinaw is not a difficult model to "convert." Her long keel gives her enough after deadwood readily to accommodate a wheel and propeller shaft. Capt. Ward cut away the corner of his sternpost, bored his shaft log, and his mackinaw was ready for her engine. Once this was installed, farewell to the sweeps. She kept her full rig for sailing whenever possible, but with a calm or a head wind, down came the sails, and chug, chug, chug, she was off about her business. Fellow fishermen noted there were no more spoiled catches and were not slow to imitate.

Skipper Naish went one better. He had a new boat built, clinker-sided and clipper bowed, with a wide square stern, which the fishermen prefer on account of its room, although the sharp stern makes the best sea boat. He had the transom raked, and the deadwood cut well away, and shipped his propeller three feet forward of the line of the transom. This was so that the net would not foul the blades when lifting or setting. He had a centerboard box built and a board shipped, to act as a rudder and hold the boat beam on to wind and sea when the net was being handled; and he took the precaution to provide two short masts, and a couple of small spritsails. But the sails, not the six horsepower gasoline engine, formed the auxiliary in this boat; and so successful did reliance on the motor prove that the sails were soon abandoned altogether, and Skipper Naish increased his marines holdings by the purchase of the launch Argo, a twenty-five foot craft with plumb stem, compromise stern, and eight horsepower engine—capable of doing duty as a passenger or pleasure craft when required, as well as assisting in the fishing business. The Argo is an out and out gasoliner and makes no pretensions at any other form of propulsion.

It is not likely that smooth skinned launches of her model will completely replace the mackinaw, for the latter is a simple, inexpensive boat to build and equip; but auxiliary power has come to stay in the lake fishing fleets.

Less picturesque than the stonehookers and smacks but equally profitable are the gasoline towboats in the vicinity of Toronto. The L-shaped island that bars the lake off from the harbor is the summer home of five or six thousand people, and every spring and fall much of their furniture has to be transported from and to the city, and through the summer their food, ice, and fuel has to be brought across. In addition the Dominion Government has for years and years been carrying on harbor construction work on Toronto Island, and gasoline boats have found an occupation here, towing scows and running errands. The island service—which is entirely exclusive of the steam passenger ferries—gives employment to at least a dozen sturdy little gasoline craft.

Hauling Up a Small Boat.

WHEN the boat is to be hauled up in the owner's boathouse it is probable that he will have a regular slipway laid down permanently with a cradle, says a writer in an English exchange, but when the boat is hauled up without a proper slipway, some sort of temporary slip and cradle must be constructed. To get a 20-ft. launch up the bank on to a lawn is not a very serious matter, and it may easily be accomplished by half a dozen men with no other tackle than their hands and a pair of long planks to form a rough slip and a few sections of scaffold-poles, about 3 inches in diameter and 5 feet long, to be used as rollers across them. The planks are first laid side by side at a convenient part of the bank, with their lower ends far enough under water to allow the bow of the boat to come on them. They should be far enough apart to insure the boat keeping all her weight between the two, but not so far as to run any risk of the rollers falling through the gap if they should happen to run a bit to one side. Roughly, the width of the boat is about the width for the slip. The boat's bow is then brought in to the gap between the planks and lifted up, while a roller is placed across them and under her keel. She is then hauled up by the men walking her up, fresh rollers being placed under the keel at suitable intervals. Care must be taken that the rollers are exactly square to the line of the planks and that the keel is also parallel to the planks, otherwise the rollers will "cut," as it is termed, to one side and throw the boat over with them.

Adelaide II.—She was designed to give comfort, especially in warm weather.

Adelaide II.--A Light Draft 48-Footer

IN the design of all yachts there is at least one special object to be obtained, if that object is possible, and the object usually depends on the use to which the owner is going to put his yacht. Sometimes it is speed, seaworthiness or general comfort for himself and guests. In the case of Adelaide II, however, the owner desired a yacht that would be safe and comfortable, especially during the hot days of summer. One on which he could live in Florida during the winter months and still not feel the depressing effects that so often accompany a great many of the yachts that go South for the winter.

In order to accomplish this purpose it was necessary to give special attention to the ventilation, and in Adelaide II the ventilation is as near perfect as can be had in a yacht of her type.

Adelaide II is owned by John C. Hopkins and was built by Morton Johnson from plans and specifications by Edson B. Schock. She is 48 feet over all, 42 feet waterline, 12 feet beam and draws 2 feet 6 inches of water when down to her designed lines, but under ordinary conditions she draws from 1 to 1½ inches less. The draft was restricted to 2 feet 6 inches, and it was very gratifying when she was launched to see that she did not come quite to her lines. This was the only thing in the whole design that the owner insisted upon having his way, as he said it would not be possible for him to visit the various places in Florida that he had been accustomed to visit unless the draft was kept down to those figures.

The arrangement of Adelaide II is extremely simple but at the same time it gives the maximum amount of room that is to be had in a boat of her type.

In order to obtain all the room possible on deck, as most of the time is spent there, it was decided to do away with a cockpit and have a flush deck that could be used for chairs. The after deck is ten feet long by about 9 feet wide, and has ample room on it for six or eight chairs while on the bridge deck is found room for several more. Both decks are protected by double pipe rails and awnings. The forward deck was kept level so as to give a good footing for the crew in handling anchors, etc.

The houses are of mahogany, the forward one being ten feet long and the after one 14 feet 6 inches. Both are lighted and ventilated by sash windows that raise, while the forward house has air ports in addition. The galley and engine room is also lighted by ports in the side of the boat.

Below decks at the forward end is found a toilet room for the crew with W. B., W. C., mirror, etc., while directly aft is located the engine room and galley containing sink, icebox, dresser, dish rack, Perfection stove and even a coffee grinder is screwed on one of the clamps so that the cook will always know where to find it. The crew's quarters are also located in the engine room and consist of two berths and locker.

A passageway leads from the engine room to the main cabin and opening off the same is found a toilet rom on the starboard side with W. B., W. C., mirror, shelves, etc., while opposite is located a state-room containing berth and bureau. This room was originally a bath but was altered to a state-room during construction.

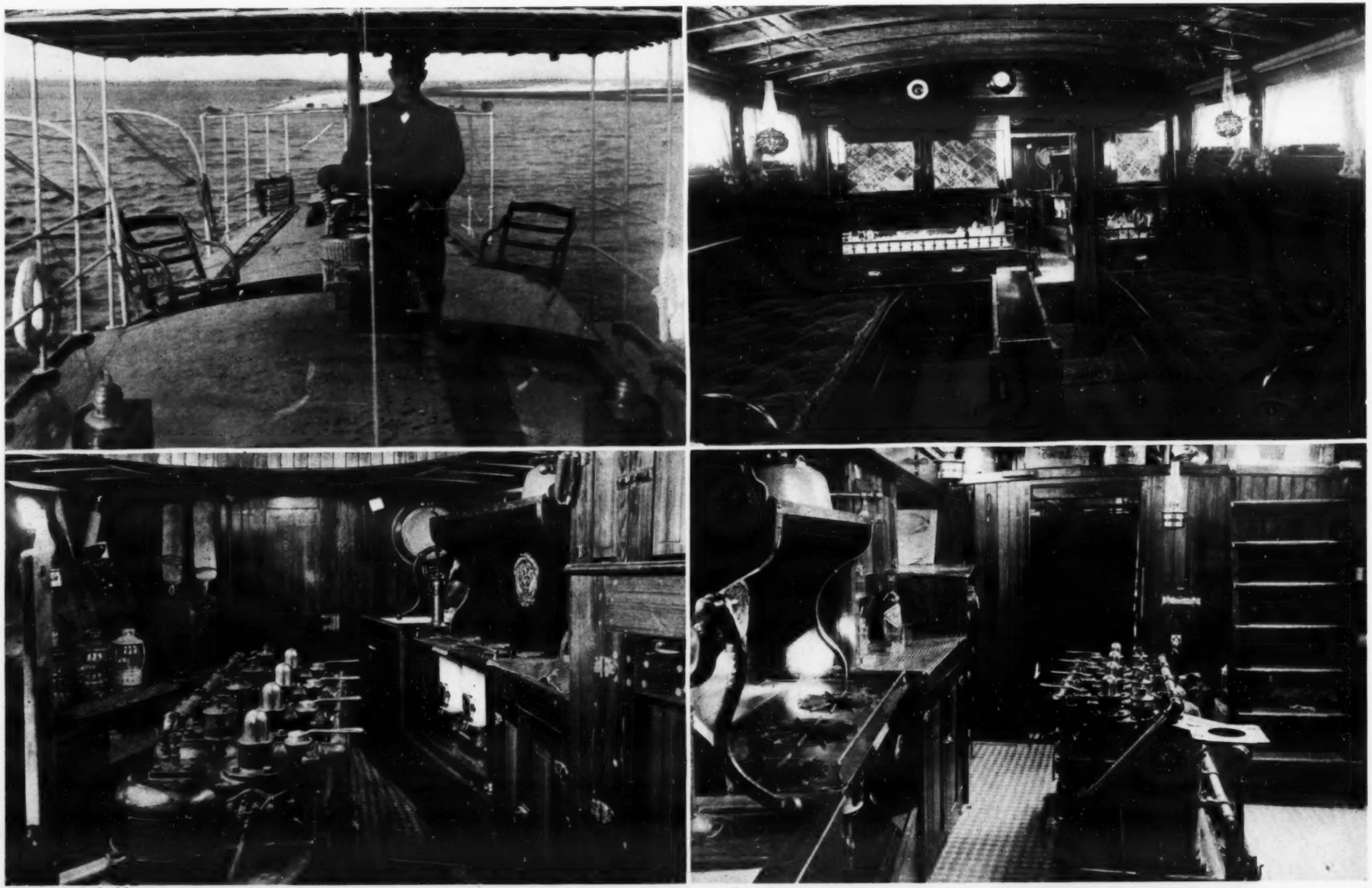
The main cabin occupies the whole of the after house and contains two full length hanging lockers at the after end and four smaller lockers located under the side decks. At the forward end of the main cabin on the starboard side is located a small buffet, while on the port side there is a large sideboard with leaded glass doors. A folding table occupies the center of the cabin while four transoms extend along the sides. These transoms are each six feet three inches long and of sufficient width to sleep two on each if necessary. The interior of the main cabin is finished in selected San Domingo mahogany while the cushions and carpets are of green. The curtains are of silk, fitted on brass rods and over each window is a small roller shade to cut out the light when desired. The galley and engine room are finished in cypress left bright.

The engine is a 25 h.p. Murray & Tregurtha 4-cylinder, 4-cycle, which gives her a speed of about 12 miles per hour. In a run of between 14.5 and 15 miles from Bay Head, N. J., to Barnegat Pier, she took one hour and seventeen minutes, and this in very shallow water.

Adelaide II carries two boats, one a 13-foot power tender with 3 h.p. Thrall engine and one 10-foot dinghy.

The form of Adelaide II conveys an impression of power and comfort. The full buttock lines carry the immersed area well aft; the long, flat, easy run together with the shallow draft make her a boat that is very easy to drive. Her slight depth necessitates a fairly flat floor, but the bilges are easy and a flare is carried well up above the waterline, which will prevent her slatting down uncomfortably in the short sea that a stiff wind soon raises in shallow Southern waters. On October 21st she started for Florida, going down Barnegat Bay to Atlantic City and from there outside to Norfolk, where she will enter the canals in order to pass inside the Cape. Owing to the lateness with which she was completed Adelaide II is today lighted by oil but it is the intention to equip her with electric lights when she returns in the spring. The workmanship throughout in both hull and joiner work is the very best and reflects great credit on her builder and designer.

The after deck has ample room for six or eight chairs.



Photographs by Levick.

Adelaide II—Above we show the bridge and control and the interior of the main cabin. Below are two views of the engine room and galley looking forward and aft.

The Prize Contest in Questions and Answers.

THE success which this contest has attained has, we speak frankly, surpassed even our wildest hope. Have we said that before? Well, the truth is so impressive that we must repeat it. The quality of the answers is excellent and it is a mighty hard task to tell who should get the prizes. Let's keep right at it to our common good. There are some more questions for December. Illustrations to answers will be welcomed. Send in sketches or photographs with them. And you who have not come in—we are all waiting to hear what you have to say.

READ the general conditions again:—We will give prizes each month to those who send in the best answers to the questions printed in the issue of the month before, and in order that the department may be helpful to the greatest possible extent, we will give prizes for the best and most practical questions submitted for the next following competition. There will be three questions in the contest this month, and therefore three prizes for the answers.

For the December contest we offer $10 in cash for each of the best answers to the questions given below, and $2.00 in cash for each of the best and most practical questions submitted for the next contest. Answers should not be more than 500 words long, although we do not insist on this limit if the quality of the answer merits greater length.

THE QUESTIONS FOR THE NEXT ISSUE ARE THESE:

1. **What should be done to an engine that is to remain in a boat while it is laid up for the winter?**
Suggested by Stuart Stevens Scott, Baltimore, Md.

2. **Are twin screws or a single screw the better equipment for a cruiser of about 50 feet?**
Suggested by L. Kromholz, New York.

3. **What is the best system of disposing of bilge water in small launches?**
Suggested by W. H. K. Davey, New York.

Answers addressed to the Editor of MOTOR BOATING, 2 Duane Street, New York, must be (*a*) in our hands on or before November 15th, (*b*) not over 500 words long, (*c*) written on one side of paper only, (*d*) accompanied by the senders' names and addresses. (Names will be withheld and initials or pseudonyms used if this is desired.)

Questions for the contest should reach us on or before the 15th of November.

THE PRIZES ARE:

For the best answer to each of the three questions given above, $10 in cash. (There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.)

For each of the suggested questions selected for use in the next contest, $2 in cash.

For all non-prize-winning answers published we will pay space rates.

To all who send in answers, prize winners excepted, we will give a reproduction (21 x 14 ¼ inches) in colors of Professor Schnars-Alquist's wonderful painting "Windstarke 10-11" on heavy paper, uncreased. It is a very desirable picture to have framed for the den or club room.

Answers to Questions in October Issue

What Is the Most Satisfactory Method of Classifying and Handicapping Contestants for a Club Regatta?

The Prize Winning Answer.

ONE cannot fairly determine the relative merits of various methods without keeping in view the real object of the regatta. You must decide whether contestants or spectators are most to be considered; whether a test or a spectacle is desired; and in what degrees speed, endurance, seaworthiness or general all-around fitness are to be factors in the result.

For a sheer test of speed a free-for-all race, with an even start and no handicaps, is of course proper. Such a race on an exposed course with a moderate sea will, if long enough, provide a test also for some of the other qualities of the boats. The objections are that only the best boats will care to enter, and that in quiet water the winners will even then be picked with certainty before the race begins, and no interest whatever will attach to the finish.

In our club this year we tried a classification by speeds; races for boats of 12 miles an hour and under, 9 miles an hour and under, and a free-for-all, with no handicaps. In the free-for-all the finish was a foregone conclusion. In the 12 mile class, a 13 or 14 mile boat finished first without exceeding the limit speed—by a judicious use of the throttle and a good timepiece. So also in the other class.

In our next regatta we required a statement of the boat's best speed to be made in writing with the entry. Handicaps starts were arranged accordingly, and each boat had her own starting gun. An excess of 3% over the stated speed was to disqualify a boat. Theoretically each class would finish in a bunch. There was, however, too much guess work about the speeds, and too much figuring about the penalty. As in the first race, the owners of the boat which crossed the line first—one second later than the time which would have meant disqualification—came in for some good natured chaffing on the score of their mathematical attainments.

No one wants handicaps based on engine power only. Nor is the mere size of hull a point to be considered. Probably the best race is one that will test the all-round qualities of the boats, and such a race will appeal most to the true sailor and his friends. The club should adopt and study one of the established systems of rules which take into account engine power, length, midship section, and all other essential details, and then frame handicaps whereby boats will be penalized and bonused, debited and credited, according to their various points, not only speed but also comfort and stability as well, becoming factors in the result. If one could also frame a rule which would make all club members enter their boats, and would abolish the disgusted kicker, it would be well, but this can only be done by encouraging a true sportsmanlike spirit in the club.

The spectacular effect of a race will be much improved by having a fairly long course repeat itself into a succession of laps, rather than spread out over a broad field upon which the boats will be out of sight for long periods of time.

FRANCIS KING.

Classify According to Speed.

I BELIEVE the best results can be obtained by the actual performance method. Boats should be divided into classes—so as to make racing more interesting to spectators: Class A.—Boats under 10 miles; Class B.—Boats 10 miles and under 15; Class C.—Boats 15 miles and under 20; Class D.—Boats 20 miles and over.

Each class should have a series of three or five races.

Handicaps for the first race should be based upon the best time that the one entering the boat certifies she can make. A percentage of 3 or 5 should be allowed each boat over her entering performance. This rule should also hold in each succeeding handicap.

All boats should be started together, to prevent a boat from passing in front and then running fast enough to keep ahead, thus keeping down the defeated boat's handicap. If they start even, the fastest boat will have to run her best, as she will then be able to tell how much she may have gained on other boats and does not know their handicap.

After each race handicaps should be changed to meet the best actual performance made in any race. Points for each race should be awarded thus: one point for boat starting, one point for each boat starting and defeated, points never to fall below the number of starters in first race, but in event of more boats starting in the succeeding race points should be awarded on number of starters in that race only.

H. J. ANGLEY, Watertown, N. Y.

Based on Best Performance.

THIS question should attract and interest all power boat owners, as the season just closing has proved, with its many racing events, the inadequacy of the present rules of classifying and especially handicapping the various contestants. The rules, as used at present, the 1905 A. P. B. A., the C. P. B. A., the "Detroit rule," and any similar rules are inadequate in handicapping boats which vary largely in dimensions and power.

For a club regatta, or any event where boats varying largely in dimensions and horsepower are entered I would suggest classifying and handicapping as follows, classification to de-

pend on the length of the load waterline: Class E.—Boats 25 feet or under; Class D.—Boats over 25 feet and not exceeding 35 feet; Class C.—Boats over 35 feet and not exceeding 45 feet; Class B.—Boats over 45 feet and not exceeding 55 feet; Class F.—Boats 55 feet and over.

My idea is that boats varying more than 10 feet in length cannot be properly handicapped under the present rules. Strictly speed boats should be in a separate class.

Handicapping should be based on best performance, and by "best performance" I mean the fastest mile each boat can travel and not the usual official mile now used with each skipper holding back a few notches. To arrive at this the only fair way would be for the official measurers, one of whom should be an engineer of ability, to take each boat out and ascertain its best speed per mile—if possible, over a ten mile course.

All boats should be tried out under the same weather conditions. Handicapping the different entries on this basis a race can be run in which each boat has an equal chance of winning. In fact the various classes could race in one event and the result would be a race and not the usual procession that follows the meeting of boats of largely varying lengths in the same event.

A race under these conditions and especially a long distance race, now depends upon the ability of the engine to keep going, the seaworthiness of the boat and the skill of the skipper as a navigator. This is all that makes racing of any interest, and many of the well known long distance races would have more entries were an owner assured of an equal chance of winning.

A. W. JACUS, Buffalo, N. Y.

Three Times Over Measured Course.

A VERY satisfactory method of handicapping is to select a short course—preferably within easy sight of the club house—and have the contestants start together and go over this course three times. The handicappers will then base the handicap upon the average time of the first and second round or second and third round, as may be decided beforehand. For instance, supposing A makes this course in 12, 14 and 16 minutes, B makes this course in 14, 15 and 16 minutes. A's time should be 39 minutes, figuring the average of the first and second rounds; B's time should be 43½ minutes, figuring the average of the first two rounds. Be is therefore entitled to 4½ minutes handicap over A. A's actual time is 42 minutes, B's actual time is 45 minutes or 1½ minutes less than his handicap over A, B therefore wins.

This same method of figuring may be carried out with any number of contestants, but if there are several of the so-called "speed class," it is then best to put these in a class by themselves and figure their times in the same way.

After the first race and the establishment of the handicap, it is more interesting, both to the contestants and spectators, to deduct the handicaps at the start, thus making very close and exciting finishes.

A long distance race may be arranged, and if the distance is not known, may be handicapped by percentage; for instance: Suppose A made one round on a short course in 10 minutes and took 60 minutes to make the long distance; B made one round on a short course in 12 minutes and took 70 minutes on the long course, A's time on the short course is therefore 16⅔% of his time on the long course while B's time on the short course is 17 1/7% of his time on the long course, B, therefore, making a better showing than A; or, in other words, A takes six times as long to go over the long course while B takes 5 5/6 times.

With this method, it is not necessary that any of the courses be measured, and it puts all boats, of no matter what speed, on an absolutely even footing. Under such rules, the steadiest running boat has the advantage, and if the times are carefully taken and worked out in accordance with the first formula, there is little or no chance of any jockeying by contestants. The judges must not, however, as stated above, allow the contestants to know upon what rounds they will handicap.

W. J. FORBES, Boston, Mass.

Goes Into It Deeply.

WHAT is the most satisfactory method of classifying and handicapping contestants for a club regatta?

Classes: A, racers or speed boats; B, open boats, runabout type; C, cabin boats including standing tops; D, cruisers; E, handicap.

The above classes to be divided as follows:

A, 1. 50 feet and over L. O. A.; 2. 40 feet to 50 feet L. O. A.; 3. 30 feet to 40 feet L. O. A.; 4. 20 feet to 30 feet L. O. A.; 5. less than 20 feet L. O. A.

B, 1. over 15 knots per hour; 2. under 15 knots per hour.

C, 1. over 12 knots per hour; 2. under 12 knots per hour.

D, under 10 knots per hour.

E, all boats of any type or speed.

HANDICAPS.

Class A. No handicap. This class stands for the highest possible speed in each division and if handicaps are used the chances are that the fastest boat will be beaten on time allowance and the prize awarded to a boat that is really not the fastest.

Class B. Each boat shall run over the same course and take her own time, and report the same to the Regatta Committee, who will handicap her on that basis in the race. Any boat exceeding in the race her handicap by more than two per cent will be disqualified.

Class C. Same as Class B.

Class D. Same as Class C.

Class E. percentage as follows:

1. The allowances in each race are the percentage of the elapsed time of the first boat to finish the race in question. Before granting any handicap to boats, comparison is made as to the relative speed of each boat. The figures are derived from past performances in racing. If there are no data obtainable from which to make a mathematical calculation satisfactory to the Regatta Committee, the percentage is granted on an arbitrary basis.

2. The last four races of the boats are considered.

3. Take each of the last four races of each boat and proceed as follows with each race: Subtract the smallest elapsed time from the elapsed time of the boat in question, divide this by the smallest time, which will give the percentage by which the boat was beaten in that race. The averages of the four percentages thus found will be the percentage to which the boat is entitled for the next race, subject to Rule No. 4.

4. The percentage by which a boat is beaten, referred to in the preceding rule, shall be considered to be the percentage by which the boat is actually beaten by the first boat to finish, plus the difference between the smallest handicap percentage of the boats starting and finishing in that race and the smallest handicap percentage of the boats in the race, whenever the boat having the smallest handicap percentage fails to start and finish.

5. The arbitrary rating shall be used as the percentage in a similar way to the actual percentages in the case of the other boats, viz: Find the product of (4 less the number of races sailed) multiplied by the arbitrary handicap first allowed. To this product add the sum of the percentages by which the boat in question is beaten. Divide this result by four which will give the percentage the boat in question is entitled to for the next race, subject to Rule No. 4.

6. Percentage shall be figured to four places.

7. Should the percentage by which a boat is beaten in any race, as figured under Rules No. 3, No. 4 and No. 5, be greater than her actual handicap for that race plus three per cent., her handicap will be figured as though she had been beaten in that race by her handicap for that race plus three per cent.

8. When the first boat to finish does not average five knots per hour, all the handicaps remain unchanged for the next race.

9. Any change of engine, propeller, trim or composition on the bottom of a boat, must be reported to the Regatta Committee at least three days prior to the next race, to change the percentage at the discretion of the Regatta Committee.

10. A boat that does not finish, or is disqualified, is entitled to no change in percentage for the next race except through action of the Regatta Committee.

11. A boat's handicap does not change unless she races, except through action of the Regatta Committee.

12. If, in the opinion of the Regatta Committee, a boat is being intentionally held back, they shall have the power, by a unanimous vote, to add to said boat's elapsed time for the purpose of figuring handicaps for the next race, the amount of time they believe she was held back, after an opportunity has been given to the owner of said boat for explanation. If in the case of absence of any member of the Regatta Committee, at a meeting for the purpose of action on this rule, his place may be temporarily filled by a disinterested member of the club.

13. If, in the opinion of the Regatta Committee, an error is made in fixing the arbitrary handicap of any boat, it may be changed at any time, at least one calendar day previous to the next race.

SIGMA, Newport, R. I.

What Is the Most Practical and Inexpensive Way of Laying Up an Unsheltered Boat for the Winter?

The Prize-Winning Answer.

THERE are six methods of caring for a boat for the winter. We will assume, of course, that the boat is properly cradled and drawn out on shore.

FIRST METHOD.—Cover the engine with a piece of canvas or heavy carpeting, with oiled cloth or rubber sheeting over all, lashed down tight to prevent blowing away. Strip the hull of everything movable: cushions, flags, lamps, tools, etc., and store at nearest possible point, or lock up in lockers if you are willing to take chances on their being there in the spring. See that the hull is braced strongly and evenly on each side. If there is a drain plug, open it, or, in lieu of that, unscrew the stern stuffing box at the propeller, letting the water, if any, drain off. Do not bore a hole in the hull unless absolutely necessary. Protect your steering gear and all exposed brass or ornamental work with a cover of canvas.

Be sure to drain off the water jacket on the engine. The decks, if of wood, may be covered over with pieces of canvas tightly tied down. If of canvas this would not be necessary. Local custom sometimes prescribes a light coat of paint on the hull and varnish on the decks for winter. Some experts advise a coat of oil or grease on the engine; some say enough collects during the summer to preserve it; the owner must use his own good judgment as to this. These directions will of course apply generally to any method pursued in caring for a boat.

SECOND METHOD.—This is practically the same as the first, except that the whole boat is covered with a strip of canvas, or paper mill felt. If near a town where paper is made, the boat owner can purchase for a nominal sum a large piece of heavy pulp machine felt which makes a splendid cover for a boat and is practically weatherproof. The canvas or felt should be long and wide enough to cover the hull all over. To put it on properly, strips of wood should be laid across the gunwale and a 2 x 4 joist should be laid from bow to stern on these. Then draw the canvas over the boat, and on top of it put enough 2 x 4's to hold

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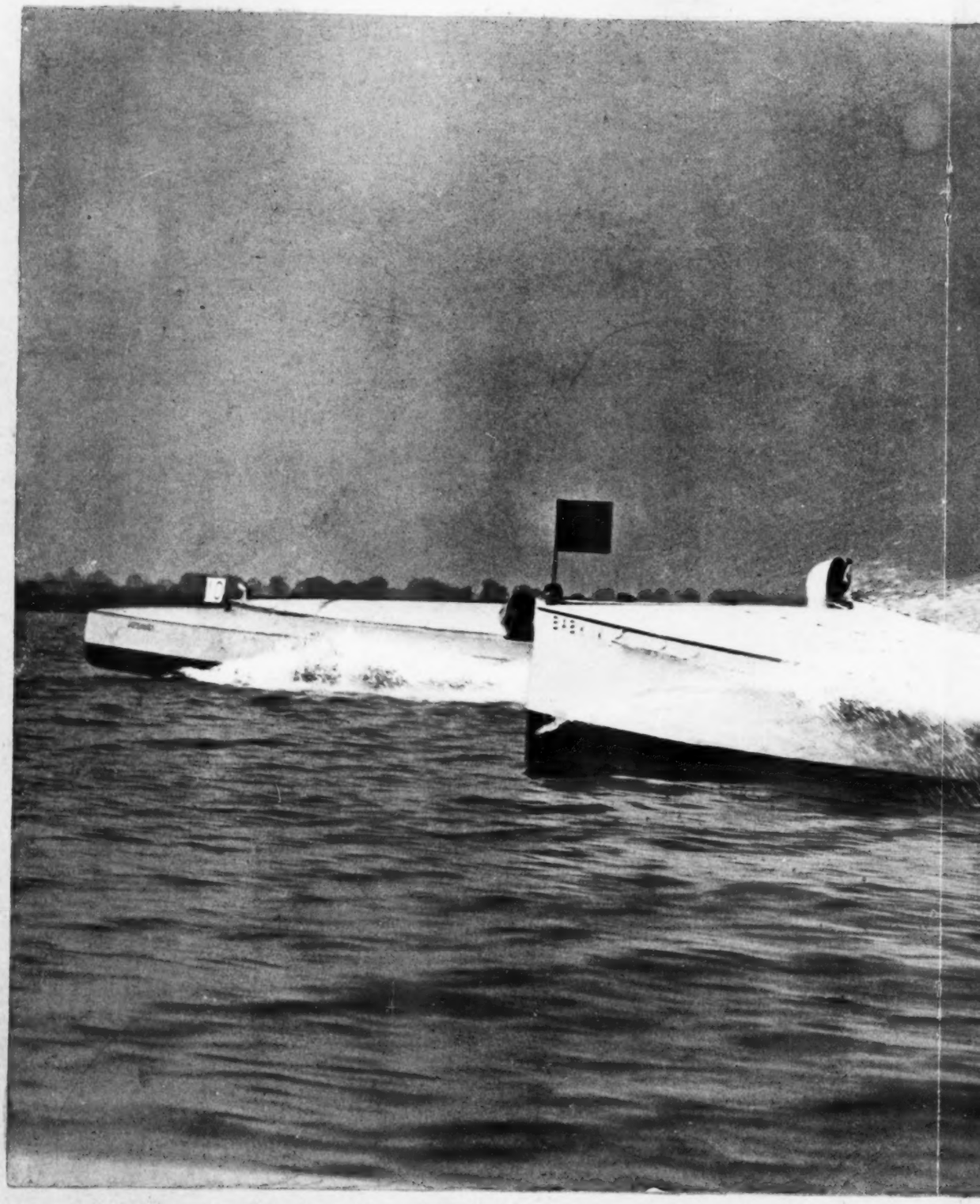

A CLOSE FINISH
Defender and Baby IV

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it down. The edges should be lashed to pegs like a tent, or can be nailed down to the side braces holding up the hull. The bow and stern ends should be lashed down with ropes. In the case of the writer, who once used this plan, the hull was dry enough to paint as soon as the felt was removed in the spring.

Third Method.—If the boat has a spray hood or canopy top with curtains, put up the spray hood or draw down the curtains, cover the engine as suggested in first method, and leave the boat to the care of the elements. If necessary strengthen the hood or curtain fasteners with cord or strips of leather. This is not a desirable plan to pursue, although one generally followed on Lake George, where the writer's experience has been gained. This method has more followers than any other, but it means a new hood or new curtain every other season at least, so it is expensive in the long run.

Fourth Method.—Put up the hood and pull down the curtains, and then build over the boat a rough temporary shed of boards and 2 x 4 joists, taking care to have enough slant to roof to run off the water and being sure to make the frame strong enough to hold heavy snows. Close both ends and sides, leaving spaces for ventilation, and you will have the best if not the cheapest method.

J. A. Holden, Glens Falls, N. Y.

Tarpaulin and a Shed.

After hauling out and being positive your boat is well shored up so there is no chance of straining any part of her, cover her over with a tarpaulin or canvas, which you can purchase from a second-hand dealer for a song, and then built a shed over her, letting it project well down all around, and you may be well satisfied that she is protected from the severest storm. When spring arrives and you are ready for the annual overhauling, you will be surprised to see what good condition she is in. By making this shed in sections, it may easily be taken apart and stored away for future use.

I used this mode of protecting a 39 ft. sloop for five years on the Great Lakes and, if I remember correctly, the whole outfit cost less than fifteen dollars and a little time spent patching a few holes in the canvas; and when I sold the boat it looked good for five years more. Each fall before using I always gave my tarpaulin a good coat of boiled linseed oil, and by storing it away in a good dry place, I never had any trouble with mildew.

E. A. Crawford, Newark, N. J.

Use Secure Blocking.

Our boat having been hauled out of the water, we have the problem before us of "laying up." Immediately after hauling the boat out of the water, the underbody should be cleaned of all sea growth with a stiff scrub brush or old broom, aided with a pail of water.

Our next step is to locate our boat, in the previously selected site, for the winter lay up. If possible, make this selection to the south of some larger boat previously hauled out or any shield which will obstruct the clear sweep of the cold winter winds. Such a selection is wisely made when possible. Once on this site, the boat should be blocked up about a foot from the ground on at least three good blockings. These blockings should be timbers with plenty of ground surface and placed under and perpendicular to the keel. By securing blockings which will extend about two feet on either side of the keel we eliminate the possibility of the boat's weight shifting onto only one or possibly two of the blockings, due to infirmness in the ground. Care should be taken in placing the bow and also the stern blocking well out from the centre of the keel to prevent any extreme overhang weight from producing a hog sheer in the keel. In the middle, between the bow and stern blockings, there should be placed at least one or possibly two blockings, according to the length of boat.

The boat must now be shored up on an even keel, and the covering of sides and top begun. For inexpensive material for this work we may look to some old straw matting which has already passed its stage of usefulness in the home. Old canvas sail or pieces of burlap, while more expensive, will answer all requirements. This material should be lightly battened on the sides of the hull to protect against frost and the evil effects of cold winds with occasional hot sunny days. Laths may be used to batten on the side coverings, but care should be used not to drive the small wire nails used through the planking.

Having completed the sides, the top should be covered. To do this, two uprights, 2 x 4 inches, are sunk in the ground, one at the bow and the other at the stern. Across these, clearing the decks by about eighteen inches, should be placed one length of 2 x 4 supported in the middle by a standard from the cockpit floor. From this ridge, stringers of light wood should be nailed about every two feet and cut off even with the rubbing streak. Over this framework we must fasten our matting or canvas, and with the edges well fastened down, so as to prevent the wind from getting any lift underneath, we may leave our boat, feeling that she is amply prepared for the winter months, which are all too long.

E. F. E., Salem, Mass.

Leave Her Overboard.

If the locality chosen to "lay up" is in protected waters, or up a river or some such sheltered place, leave the boat overboard, either tied up to moorings, spiles or alongside of some dock. The last, however, is best avoided if it can so be arranged, as dirt, etc., would be blown on board, and also it is an invitation for small boys and petty thieves to come aboard and remove anything that is movable and that might attract their fancy. After the boat is moored most securely and all the things taken out of her that the owner wishes, cover her over with canvas. It is best to take a ridgepole in order to shed water. The canvas should be long enough to cover both sides about three or four inches below the waterline. Make the edges fast to the hull with stout light battens and put on a few extra at the bow as a protection from ice. Another row of battens should go 'round the hull at the waterways. If the owner wants to go to slight extra cost he can have a flap made over the cockpit in order that he can get into the boat any time during the winter. If the locality is sufficiently protected and is in a place where not much ice forms, this is certainly the best and cheapest way of laying up for the winter. In the event of not being able to lay overboard, haul the boat out on your own beach, that of some friend's or at a shipyard; in some localities the town or city has public slips where you can haul out for nothing. After hauling out, cover her as above, omitting the extra battens at the bow. The owner need not have the canvas below the water ways in this case; but, of course, it is better to cover her over entirely. The above question is rather difficult to answer in a general way as it is such a large question of locality, and in some cases the more expensive way might be the most practical.

Sigma, Newport, R. I.

When the Motor Stops Unexpectedly, What Is the Best and Surest Method of Locating the Cause and Applying a Remedy?

The Prize Winning Answer.

If your engine stops the same as when you pull the switch, look for a loose connection, broken wire, dirty points, short circuit, fingers not coming together or snapping, broken timer or broken springs on circuit breaker or igniter.

If the stop is preceded by missing explosions look for weak batteries, loose connections, weak springs or igniter fingers, smutty points or plug-fitted vibrator points or too slow vibrations.

If it speeds up a little, then blows back in base or carbureter before stopping, look for an empty tank, clogged gasoline pipe or carburetor, water in gasoline or the needle valve jarring loose and closing up, shutting off the supply.

If the engine appears to be overloaded and finally stops, look for a hot bearing or a bound one, too much gasoline, dry cylinder or something in the wheel. The above are the usual stops one has to contend with and a little study of the subject will make anyone familiar enough with his engine to tell nearly every time that the machine stops, what the cause was. Of course one may break a connecting rod, crank shaft, eccentric, eccentric strap, gears and a dozen and one other parts, but in nearly every instance they will show for themselves without any hunting for trouble on the part of the operator.

J. W. Rankin, Camden, Maine.

The Spark Is at Fault.

When a gasoline motor stops unexpectedly the most probable cause is some trouble with the ignition, for practical experience demonstrates that in more than ninety per cent. of the unpremeditated "shut downs" the spark is at fault. But don't commit the very common error of at once proceeding to adjust the spark coil, as the ordinary result is to make a bad matter worse. Of course the best mode of procedure to follow varies with conditions, as much depends upon whether or not haste is imperatively necessary. If you are taking part in a race, or are off a lee shore with heavy wind and sea and no anchor immediately available, haste is the main requisite, but as those are somewhat unusual conditions let us assume that they are not present and that we have "all the time there is."

Shut off the flow of gasoline, open the relief cock, crank the motor very slowly and listen for the sound of the vibrator. If you do not hear it there is reason to suspect a broken connection. Carefully examine the connection between the cells and from the battery to the spark coil, as it is at those points that breaks most frequently occur. Should none be found examine connections between coil, switch and motor, also examine vibrator to see if it is "glued" to core of coil—which is a by no means infrequent occurrence, especially if the platinum point on the vibrator be badly pitted. Should the vibrator resume action after the motor has been idle for a while it is almost positive proof that the stoppage was owing to one or more of the cells not having sufficient amperage. In that case of course one should either remove all the cells and substitute new ones or else "double up" on the number of cells in the battery if you have two batteries available and neither one of them is strong enough to run the spark coil alone.

With some ignition systems there is a possibility of the deposit of grease which will interfere with the action of the commutator, so it is well to see that the commutator is clean, also that the spark plug is not short-circuited. If you have no reason to assign the trouble to the ignition service there must be something wrong with the "mixture" delivered in the firing chamber, for where the spark is all right and the motor will not run there is either some hindrance to the flow of gasoline or else the proportion of air is such as to make either too rich or too scanty a mixture. See if the supply of gasoline in the tank is not so low as to render the feed intermittent, also see if the carburetor is not choked or if the float feed has not got out of adjustment. Not infrequently a motor stops on account of insufficient lubrication, or because something has seriously interfered with the pump service which is designed to prevent it from becoming overheated. In either case the cylinder will become so hot that it is easy to detect the source of trouble. But perhaps the main thing to bear in mind when seeking to start a balky motor is the importance of leaving things as you found them as you go through the process of trying first one thing

(*Continued on page 56.*)

The Building of Viking.

The Story of a Man Who Built Two Boats and One That Suited Him. What The Last Is Like, and Why It is Like It.

By J. Walter Scott.

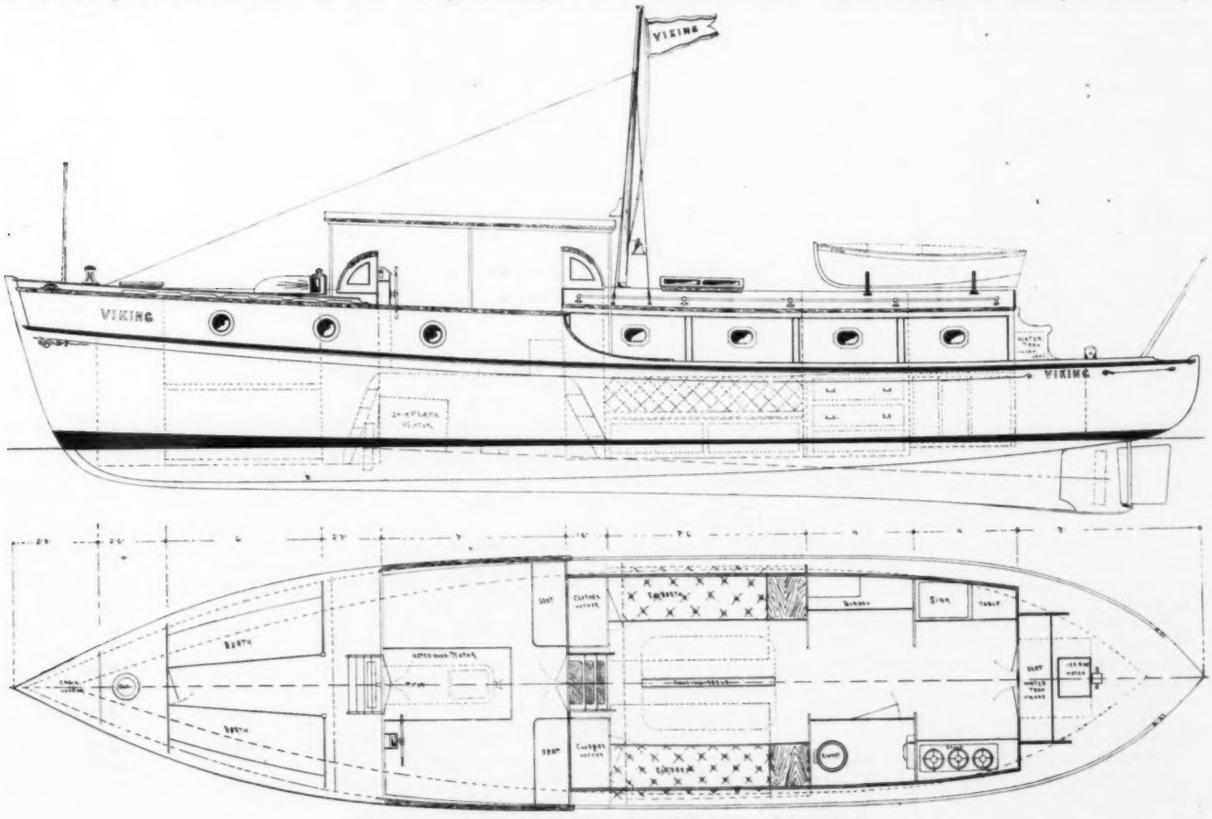
THERE is an old saying that you have to build three houses to get one that suits you—presumably the last one. This is certainly true of cruisers—and then you are not satisfied. It is not big enough, and so you continue building until your pocket-book stops you. Viking is my third creation, and my pocket-book has given me the sign. Fortunately for me, I am the exception that proves the rule and I am satisfied. She is big enough, as big a boat as one man can handle safely, and if I were a millionaire I should not care for a cruiser so large that I should have to carry a crew to handle her. There is undoubtedly some pride gratification in owning a large craft, but if I can't run my own cruiser and care for her power plant too —well, I should prefer to ride on the D. & C. passenger boats that ply in every direction from Detroit "where life is worth living."

Lest someone who has read descriptions of Teresa I and Teresa II should wonder, why not Teresa III? I will say that I like my wife and her name as well as ever. But it was this way—Teresa II (40 ft., L. O. A.) was a good boat and six people cruised for six weeks in all kinds of weather in safety and comfort, but we had a series of little annoying mishaps, not one of which really had anything to do with her sea-going qualities or with the completeness of equipment, or the arrangement for convenience and comfort, but—well, here is one of the incidents, and you can judge for yourself. It was an incident that would have caused Job's batting average of patience to slump below .300. It came as the end of a series of incidents, after each of which my nephew, a young man of some experience as an amateur yachtsman, had said, "That is the kind of luck you always get on a yacht that is named for a woman."

One Saturday evening we lay in the American channel opposite Belle Isle, Detroit. My wife and sisters-in-law had scrubbed and polished the cockpit floor while I had been busy with the engine and engine-room. My nephew had gone ashore. He and I had alternated in caring for the anchor light, and as it was growing dusk I looked for it and found it still at the mast head. It had been forgotten that morning. This had happened once or twice before and the light had burned all day without being noticed. I pulled it down to fill it and found that it had burned itself out. With my experience I should have taken it down into the engine-room where, with the electric light I could have noted its condition and detached the oil reservoir base carefully, but I was in a hurry and did not take the time. I took the lamp apart in the cockpit, and out came about a bushel, or at least it seemed as much, of soot which fell on the floor, on every thing. The more we tried to mop it up the worse the mess was made. If you have never had any experience with soot you cannot appreciate our plight. However, after two hours' work, in which I led the deck hand crew, the cockpit was once more clean and a weary and hungry crowd called for something to eat, for anything to eat. I reiterate, I did not have to wait for my nephew's return and hear his raven-like croak "Never name a boat for a woman" to form a resolution, and so the new boat is Viking.

She is 45 ft. L. O. A. by 9 ft. 6 inches beam, and draws about 3 feet of water. She is of heavy construction, having a white oak keel of 4-inch stock, but as the ribs are rabbeted into the keel, with the cheek pieces notched over the ribs, the keel really is over six inches thick for most of its length. The ribs are of white oak, 1½ by 1¾, and are spaced on 10-inch centres. The planking is to be of 1¼ cork pine. There are only a few patches of cork pine timber left. As the first 40 to 50 feet of the trunks of these trees does not have a limb or branch, long lengths of planking absolutely free of knots may be obtained. The planking in Viking has been air dry seasoned for over two years.

I will not dwell on the hull details beyond saying that the planking is copper fastened, and that the nails are countersunk and then riveted over burrs. And the bilge is filled with tar up level with the ribs to prevent water pockets between the ribs. Viking has a cockpit amidship and the quarter-deck is flush. I have had experience with a cockpit aft in my first cruiser 38 ft., L. O. A., and with a cockpit amidship in my second cruiser 40 ft., L. O. A., and I think the cockpit amidship is decidedly the better arrangement. All the Eastern builders seem to favor the cockpit aft and a raised deck type of cruiser, but the only thing I can see in favor of the latter type is that it gives more cabin room. But you cannot see what you are doing when at the wheel, that is, when making a dock or when near a small boat or canoe, and you are therefore likely to run someone down. Of course, they say you can have another wheel forward on top of the deck, but it is an exposed place which the women aboard cannot enjoy. If protected by an awning, the awning must be carried so high that it spoils the appearance of the craft. The only argument against a cockpit amidship is that it is likely to be a damp place in rough



Viking—A third attempt that is satisfactory. See article.

weather. In fact the head of the firm that constructed Teresa II, a man of sixteen years' experience in building and sailing various types of boats, said as soon as he saw the blue prints that if I went out in all kinds of weather as I anticipated, I would have the cockpit level full of water, and be standing waist deep in it at the wheel and with enough of it seeping through the cabin doors down the companionways to have me worried to say the least. Well, we were out in all kinds of weather, weather that bothered some of the smaller passenger boats, and bothered the passengers more, but there never was a drop of solid water came aboard and very little spray, and no one was seasick, even though the women are not very good sailors. We were never even rolled to the point of discomfort but once and that was when we had to take the trough of the sea for a mile and a half going in on the range lights to make the mouth of the Thames river in Lake St. Clair.

So much for the safety and comfort of this type of cruiser. Of course with this type you have to have a rather full bowed hull with a fair flare, and it makes a boat that will pile up a little water, but if the lines are just right she will readily have just about as much speed in ordinary weather as one with finer lines. She will make better speed in a bad seaway, for she will not dive and lose headway. Viking has just such a hull in the forward section. Aft of the beam she is flattened a trifle with full bilges and will be good and stiff, but with the gasoline tanks rather high on the cockpit floor, she will not right herself so quickly as to be uncomfortable, and she will not pound, for she has one of the finest compromise sterns I have ever seen.

With her 24 h. p. Lamb motor turning up about 500 revolutions with a three blade 24 diam. by 30 pitch Harthan propeller, she should make ten miles an hour. She may do eleven or even twelve. The engine is under the cockpit floor with about nine inches clearance from the top of the cylinders to the beams. The fly-wheel comes just inside of the forward cabin and there is a space of about two feet the entire width of the hull for room to throw the motor over with a starting bar. Tool lockers are on each side and there is a canvas cover for the engine to prevent odors reaching the cabin at night.

Forward of this space are two permanent bunks built high so as to get more room, with a narrow passageway between leading to a small but fully equipped toilet-room. There are lockers under the bunks, and forward of the toilet-room in the forepeak is the chain locker. Entrance to this forward cabin, or "owner's stateroom," some would term it, is by a scuttle hatch with removable companionway. Entrance to the main cabin aft of the cockpit is also by scuttle hatch and companionway stairs that have room at each side between the companionway and two full length clothes closets for two suit-cases. Next come two berths (with lockers under) that are 78 inches long, but only 60 inches of them extend, thus giving eighteen inches of space to sit down on and remove one's shoes and clothing. This will be appreciated by those who have wrestled with the problem of how to undress in comfort after the berths have been extended. This feature of Viking enables you to undress "with all the comforts of home."

Next comes a 4 ft. passageway leading to the galley. On one side of the passageway is another toilet-room fully equipped, and on the other side is a bureau with a mirror. The galley is across the aft end of the cabin with a three-burner denatured alcohol stove on one side and on the other a sink and drain board. This is exactly the same arrangement of the main cabin as we had in Teresa II, and after a season's use we could see no place to change a single detail except that instead of a refrigerator in the galley, we will have a large ice-box, holding a greater quantity of ice, and place it under the quarter-deck to be filled from the outside and with door from the galley inside. We were never bothered with odors from the galley a half hour after meals, and with those not working inside clearing the dishes naturally going to the cockpit, no one was bothered. I cannot understand the placing of the galley in the engine-room where the odor of oils penetrates the cooking and where, with the engine running and underway, most women could not cook at all, and I have not mentioned the greatest objection of all, the lack of safety. However, some of the finest boats have that arrangement, and inasmuch as very few, comparatively speaking, accidental fires have started from the galley, it must be fairly safe. But even so, such an arrangement would never satisfy me.

There is to be a copper cylindrical fresh water-tank mounted on the quarter-deck next to the cabin bulkhead with a pipe leading through the ice-box to a faucet low down in the galley so there will always be two or three glassfuls of iced water on tap. Over this tank there will be built a seat, and it will make a fine place to sit, for there will be a rail around the quarter-deck so one cannot fall overboard.

I neglected to mention that there is a permanent drop leaf table in the main cabin. This divides the two berths at night, and when opened up makes the dining-room table, and is also handy as a writing-table, in lieu of a desk. In the first cruiser I had a folding table. No more of them for me. They are always falling down when you want them to stand up, and when not in use, take up more room than a permanent drop leaf table that you get in the habit of dodging when passing through the main cabin even in the dark.

The ports, companionways and hatches of both cabins are screened. Freedom from flies and mosquitoes enhances the pleasure of cruising by just fifty per cent. The cabin tops and quarter-deck are canvas covered, and also the cockpit floor.

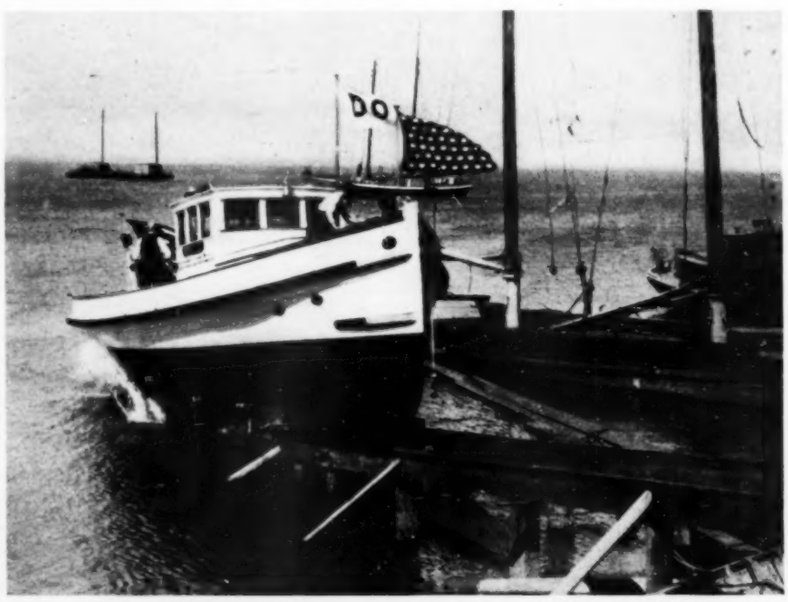
To those who are skeptical about the possibility of building a cruiser that will not leak some water if it is raining hard enough, or lasts long enough, or if the wind blows in the right direction, I will say that the builders of Viking absolutely guarantee that there will be no leaks in the deck house roofs, the ports when closed, the hatches, the skylight, or even the hull, excepting the seepage through the stuffing boxes on the propeller shaft. They did not offer to guarantee this, but when the matter was broached they did not "side-step," and as they are under forfeit of one hundred dollars, they must have confidence in their ability to do what they say they can.

Two cylindrical seamless tanks for gasoline are carried on opposite sides of cockpit on the floor with open seats built over them. They are in sight in case of leaks, and if any gasoline is spilled in filling it runs to the scuppers instead of the bilge. The feed pipes pass directly through the floor, then along deck beams until directly over the engine, thence to a common strainer, and down to the carbureter. They are in sight from the engine-room, and at any time they may be inspected by simply pasing a hand along the surface of both of them. Racks in the engine-room hold oil-cans and dope pails.

The power plant, with its dual ignition system, is better and more reliable than the plants on either Teresa I or Teresa II, yet a real spar is carried with enough canvas and tackle for emergencies that may never come. We carried a spar and canvas on Teresa II, which were never used, for the emergency never came, but it certainly makes one feel easier when the land fades in the distance and you see water and only water in every direction to have such an equipment. There is a permanent canopy over the cockpit instead of the conventional canvas lashed to stanchions and hardly efficient even as a sun shade. Our canopy is light, and Viking can carry it without staggering in any weather, and with the side curtains it makes a third stateroom for emergency uses. It has a tent beaten every way, and if the mosquitoes do not fly in ferocious swarms, it is an ideal sleeping place.

There is the usual towing post aft, and a winch forward with chocks, cleats, lines and a chain. A light anchor for mooring and a heavy one for holding when it is absolutely necessary that it should hold are also carried. A Davis dinghy is carried. The forward cabin is finished in white enamel with a dark trim. The main cabin is quartered red oak with paneled ceiling for the cabin top proper of three-fourths-inch pine. The deck house sides will be finished natural, but the remainder of the cruiser will be white. She will carry her own electric light plant.

Viking is being built by the Detroit Launch and Power Co., of Detroit, Mich., and her lines were worked out by Mr. John Hacker, head of the firm, who is one of the few naval architects I have met who seemed to realize that the humble prospective owner might have a hundred crazy ideas under his hatch so to speak, that is, crazy from the standpoint of conventional nautical precedent, yet have a few that are really good things if worked out, and he certainly can work them out. He deserves a lot of credit, for a cruiser that will have more features for safety, comfort and convenience than any of her size I have ever seen.



The launching of Dow No. 1, a 57-foot tug equipped with 3 cylinder, 50 h.p. Dock engine, for use in San Francisco Bay.

New Motor Boat Designs

A 45-Foot Speed Runabout.

THE 45-foot high-speed runabout illustrated herewith has been designed by Morris M. Whitaker of New York for a Detroit owner, and will be used as a ferry between that city and the owner's country residence. The boat is designed to make fairly high speed and will be equipped with a special 4-cylinder, 7⅛x7⅜, 4-cycle motor, running at about 750 revolutions, which will give the boat a speed of about 20 to 22 miles an hour. As will be noticed from the arrangement, the motor is placed forward under a hood, and the steersman's and engineer's seats are at the forward end of the cabin house, protected in the front by a glass screen arranged to hinge and swing up under the deck. Just abaft of this is a shelter cabin with full length transoms on each side and on the port side is a toilet. The same space to starboard is occupied by a combination icebox, sink and stove shelf with sufficient equipment to serve a buffet lunch.

The space under the lockers is designed for storage and the windows on all sides are made to open so that in fine weather the boat is practically open all around. At the stern is a self-bailing cockpit which will be covered by a light canvas canopy. Provision will also be made for carrying trunks and other light baggage on the after deck.

The fuel tanks of seamless steel are located under the after deck and fuel will be supplied to the motor by a pressure system. The hull will be lightly but strongly built, ribb and carvel construction, with a special system of longitudinal framing by which each alternate strake has a heavy fore and aft stiffener instead of the usual steam strap. Transverse web frames will be used at either section with additional web frames abreast of the motor.

An exhaust ventilating fan of the Sorocco type will be directly connected to the flywheel, discharging through the cowl ventilator on the forward deck. The hull will be built of cedar with oak framing, and decks and the cabin house will be of mahogany. The boat is designed with a "V" bottom from end to end so as to make her a good sea boat under all conditions of weather. Forward sections are well flared with this end in view.

A 48-Foot Day Cruiser.

THERE has just been shipped by the Racine Boat Mfg. Co., of Muskegon, Mich., a 48-foot by 9 feet 6 inch beam, 3 feet draft day cruiser to Mr. Robert McKay, of Pittsburgh. The entire cabin interior and exterior are finished in figured mahogany. The main saloon forward is fitted with Pullman tables and wicker furniture. Large plate glass windows entirely surround the cabin. Off from the main saloon opens the galley, with refrigerator, stove, sink, lockers and dish racks, also the toilet room complete with all the requisites.

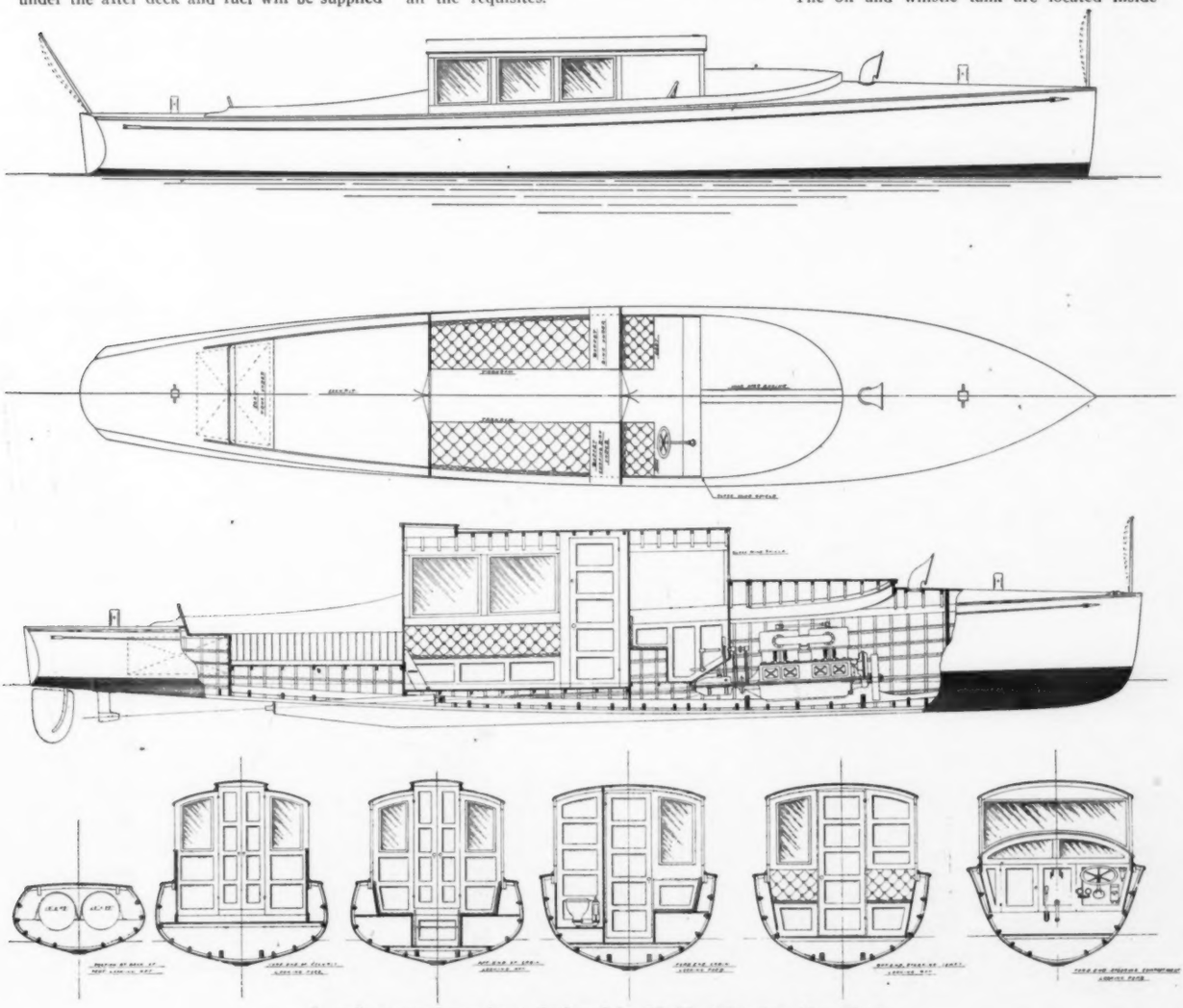
Engine room is aft of the main saloon, and like the main saloon is panelled in figured mahogany. The power plant consists of 4-cylinder, 4-cycle, 40 h.p. engine, 7 inches bore by 8 inches stroke. The roof over the engine room is dropped some 14 inches below the roof of the main saloon and is used for a bridge, the steering wheel being located at the after end, with binnacle, and entire control of the engine is had from this bridge, so that the boat can be handled by one person. In addition to the steering wheel on the bridge one will be located at the forward end of the forward saloon. All of the deck trim, such as chocks, cleats, etc., are of brass nickel plated.

Betsy Jane II.—A 55-Footer

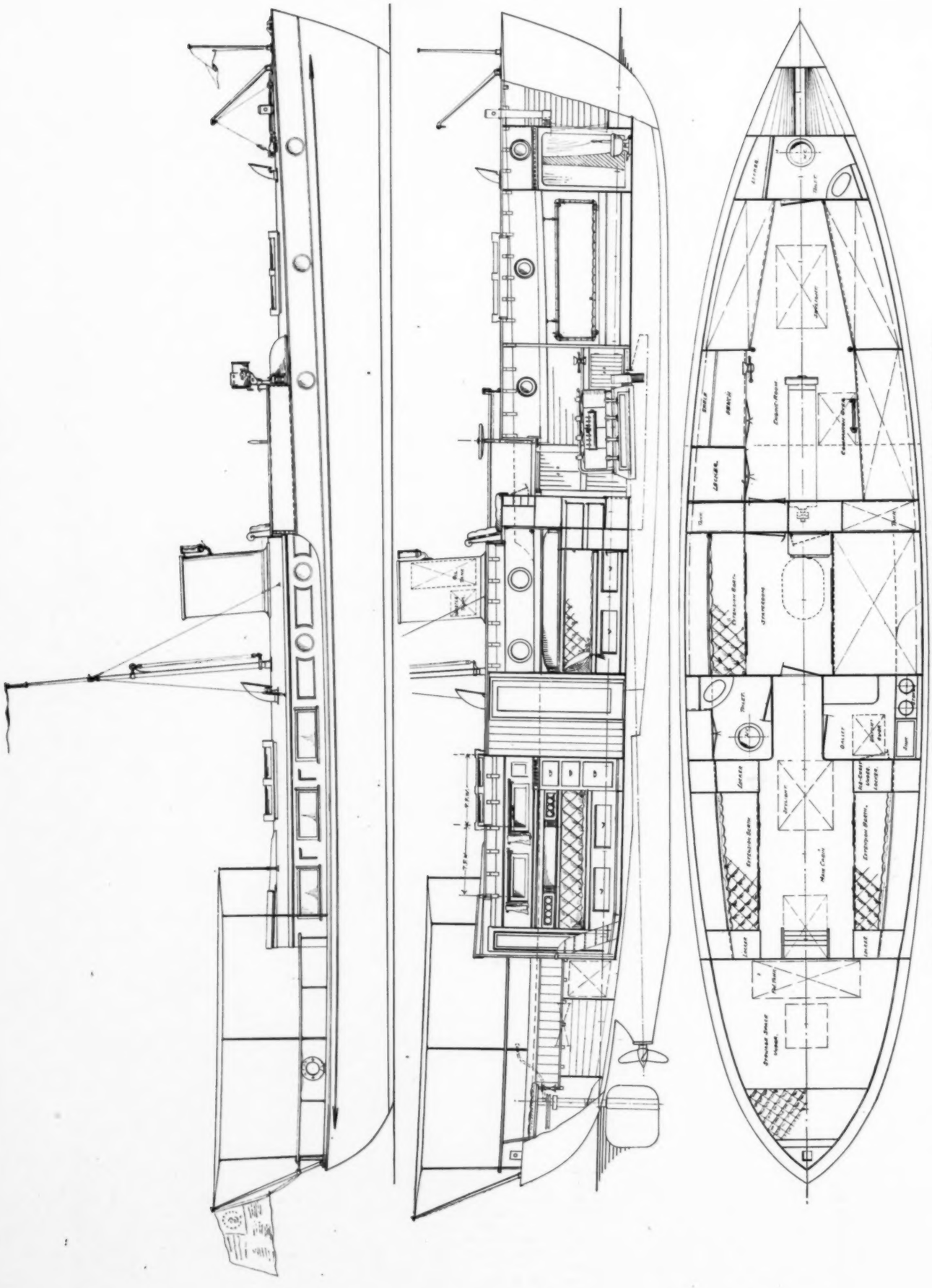
ONE of the most successful power boats turned out this season by one of Boston's prominent firms of naval architects, Swasey, Raymond & Page, is the Betsy Jane II, which is what they consider a good ocean-going cruiser.

The boat was built for Mr. F. R. Hayward of Boston. She is 55 feet o. a., 49 feet w. l., 11 feet 8 inch beam, 4-foot draft, and is equipped with a 25 h.p., 4-cyl., 4-cycle, heavy-duty, slow-turning Jaeger engine, which gives her a speed of 11 knots per hour.

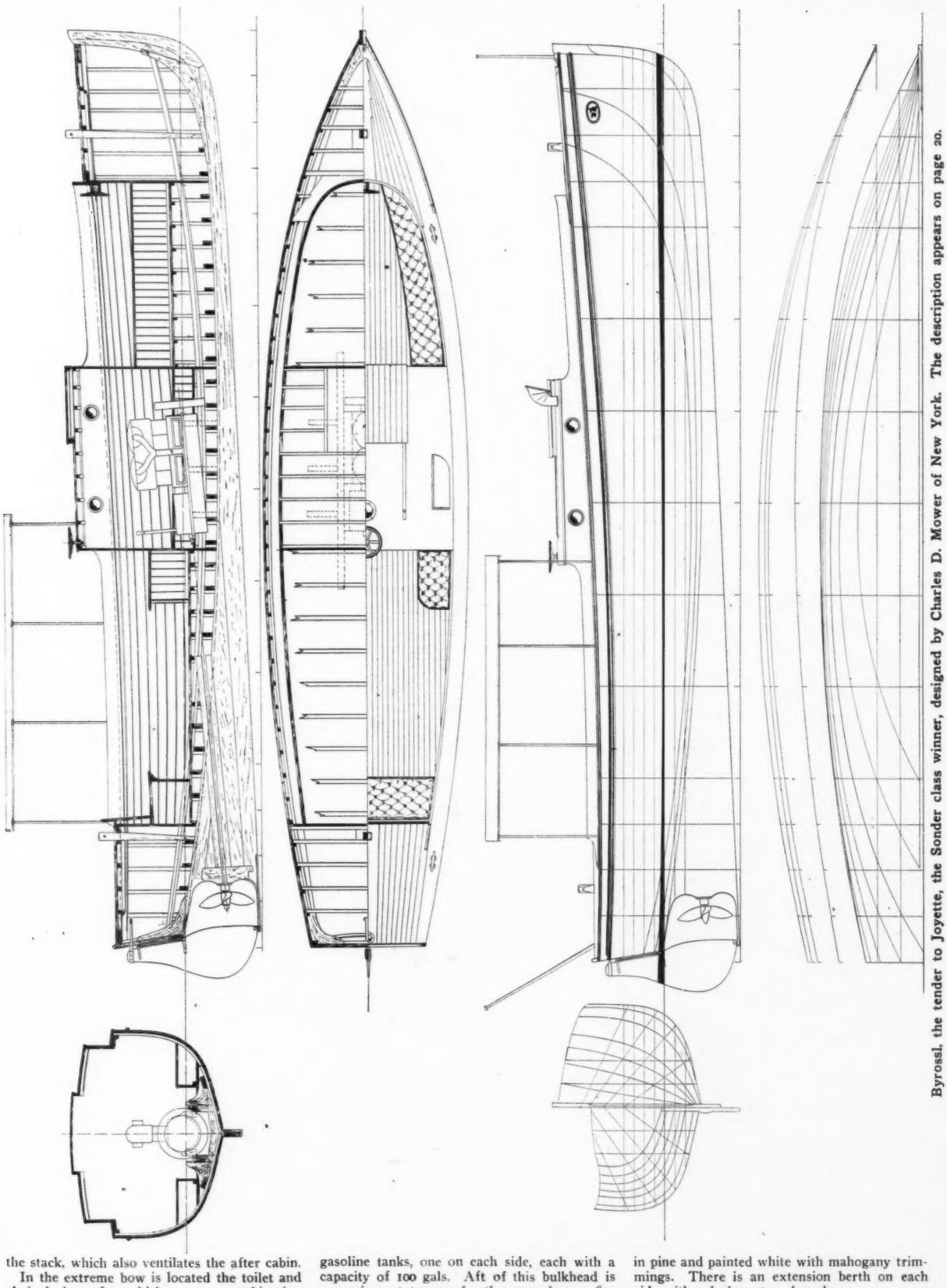
She has a bridge just forward of the stack, containing steering wheel and engine control. The oil and whistle tank are located inside



A 45-foot speed runabout, designed by M. M. Whitaker, New York.



Betsy Jane II—A 55-foot ocean-going cruiser, designed by Swasey, Raymond & Page, Boston, Mass.



Byrossl, the tender to Joyette, the Sonder class winner, designed by Charles D. Mower of New York. The description appears on page 20.

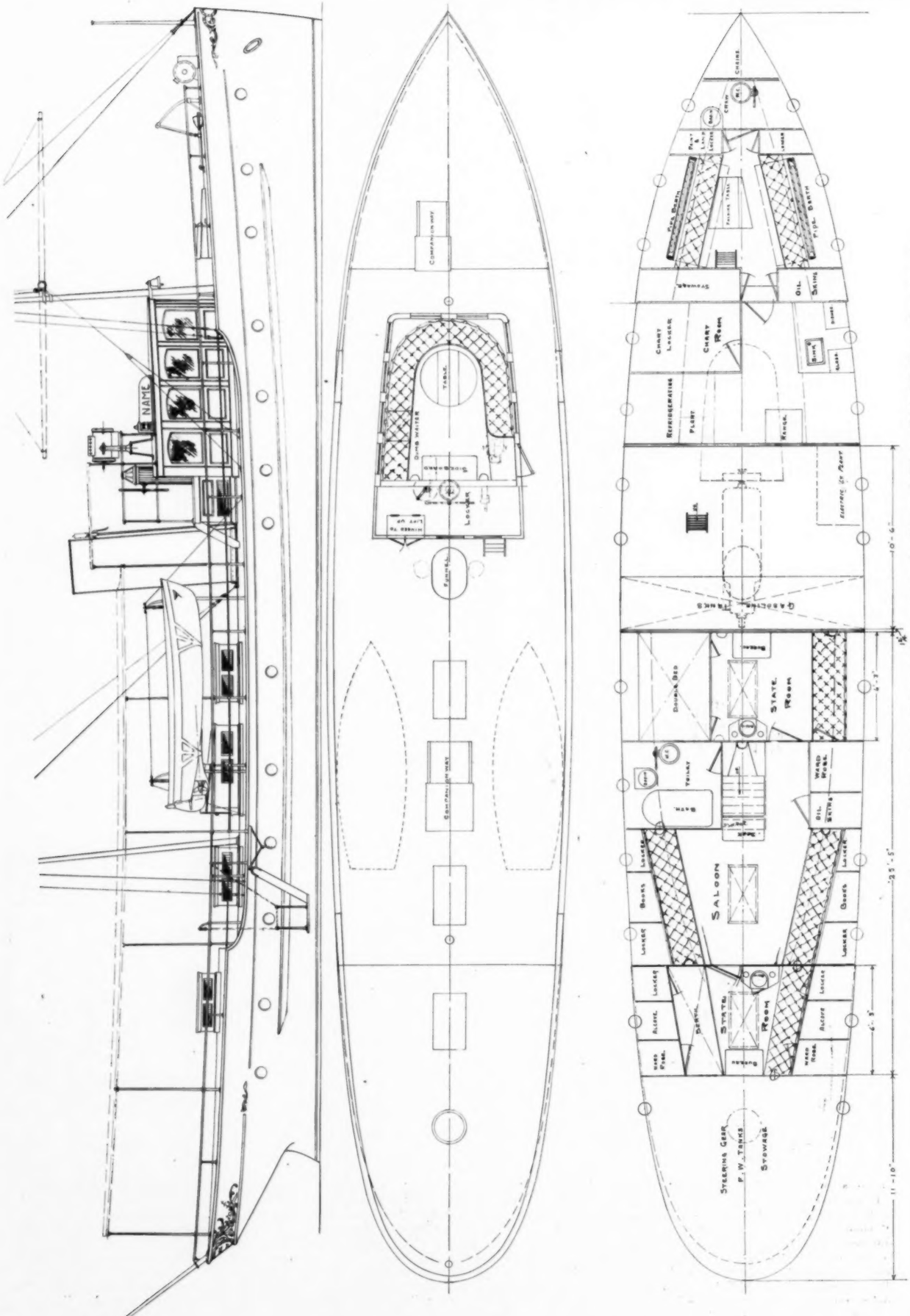
the stack, which also ventilates the after cabin.

In the extreme bow is located the toilet and chain locker, after which comes a combination of engine room and crew's cabin, which accomodates three people. Aft of this are pipe berths on each side, with a sky-light overhead. A good size work bench and shelf on the port side, aft of which is a large locker, and a transom on the starboard side.

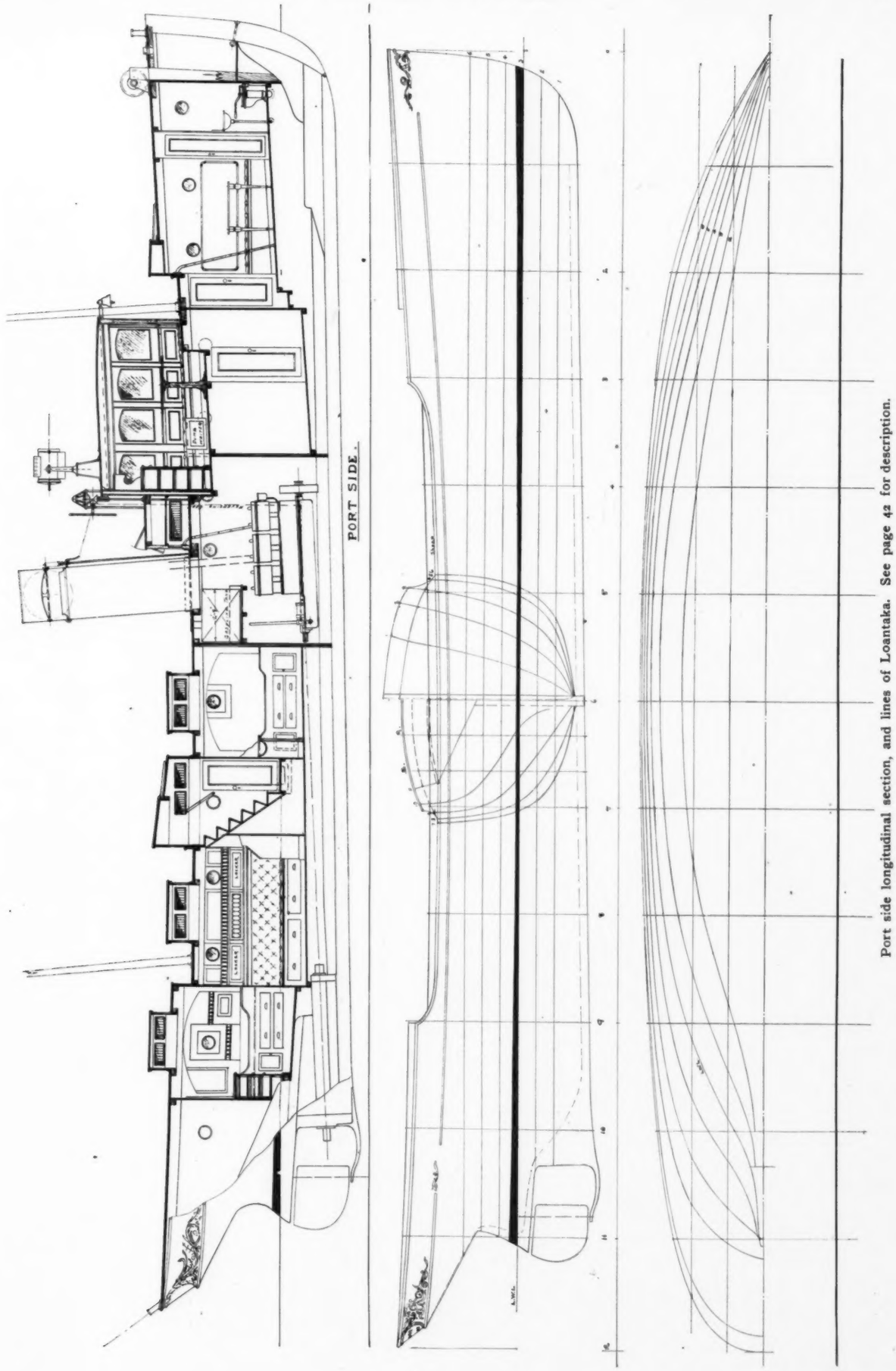
Next comes a steel bulkhead containing two gasoline tanks, one on each side, each with a capacity of 100 gals. Aft of this bulkhead is a spacious stateroom for the owner's use, finished beautifully in butternut, and containing extension berth on the port side and the owner's bed on the starboard side.

Going aft of the owner's stateroom is a narrow hall-way, to port of which is a toilet, and to starboard is the galley. This hallway leads to the main cabin, which is finished in pine and painted white with mahogany trimmings. There is an extension berth on each side with a locker at each end.

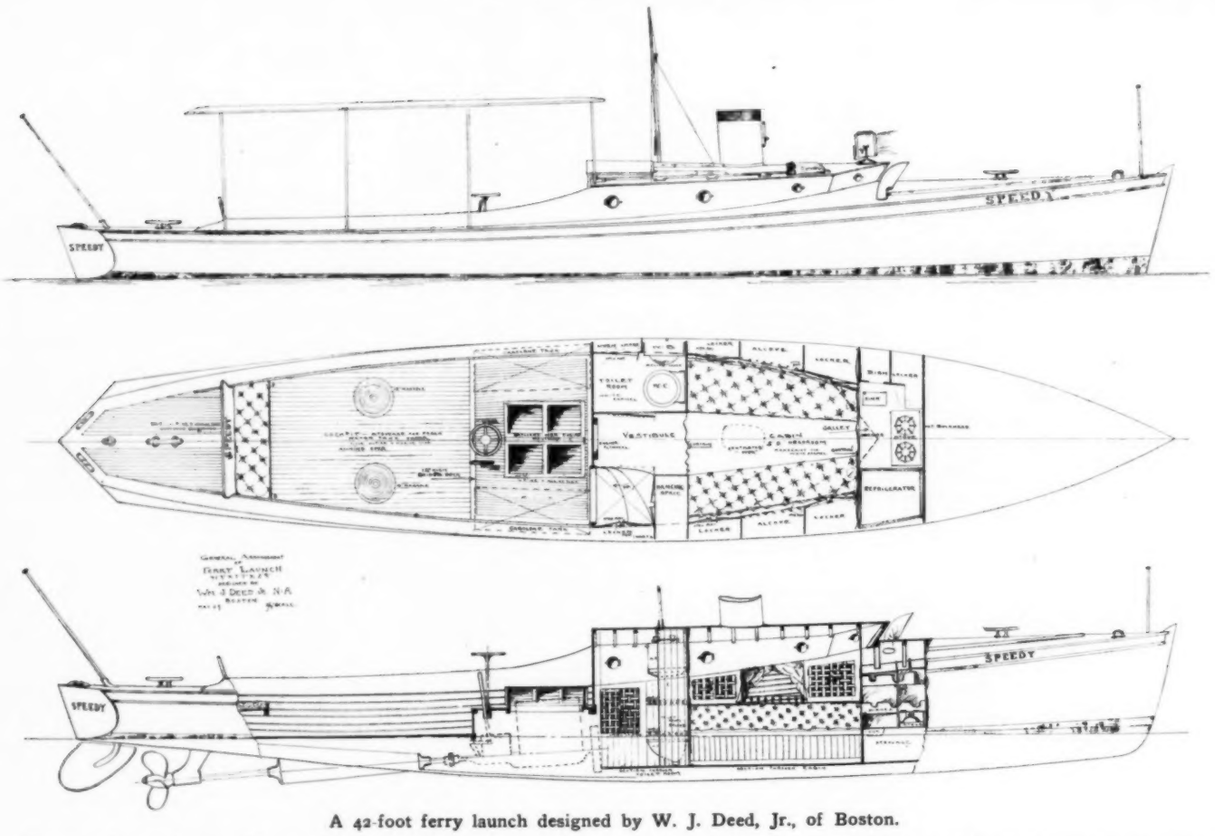
A companionway leads from the main cabin to a cockpit, which is quite small, under which there is quite a little storage space and a large fresh water tank. Betsy Jane II carries a 12-foot tender in davits aft, on the port side. She was built by Geo. Lawley & Son Corp., of South Boston, Mass.



Outboard profile, deck and accommodation plans of Loantaka, a 73-footer by Bowes & Watts, Philadelphia. See page 42.



Port side longitudinal section, and lines of Loantaka. See page 42 for description.



A 42-foot ferry launch designed by W. J. Deed, Jr., of Boston.

Loantaka—A 73-Foot Shoal Cruiser.

THE plans on pages 40 and 41 are those of a rather unusual shoal draft sea-going cruiser which was designed by Thomas D. Bowes, M.E., now of the firm of Bowes & Watts. The boat was designed for a Dover, N. J., yachtsman and was built by Hiram Weller's Sons at Trenton, where she was launched recently. All the material in the boat was specially selected, and the workmanship was up to the usual high standard of these builders. The object in the design of this yacht was to make a shoal draft cruiser of the tramp steamship type, capable of standing heavy off shore work. The dimensions of this boat are as follows: Length over all 73 feet, beam 14 feet, draft 4 feet 6 inches loaded. The yacht has a raised forecastle and poop, which allow a greatly increased accommodation. The deck house has the center sunk just enough to allow of the rest of the deck being the right height for a seat all around inside. The deck house will be used as a dining saloon, being connected to the galley below by means of a dumb waiter.

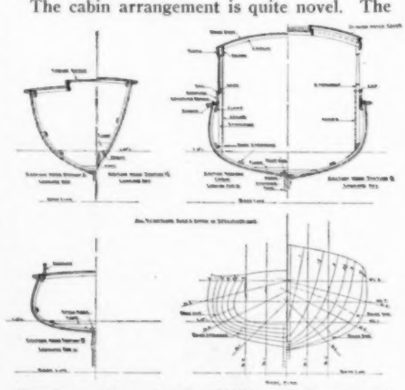
Forward next to the chain locker will be the crew's toilet, three feet long and extending across the boat, then comes the forecastle which is 10 feet long, well equipped with lockers; the raised deck over this compartment makes it quite roomy. Aft of the forecastle come the galley and chart room, which is located directly under the deck house. The galley is quite large and will be equipped with a Shipmate stove and a large refrigerating plant. At the after end of the galley there is an extra heavy water-tight bulkhead, which cuts the forward part of the yacht off from the engine room. The engine room comes next, just forward of amidships and contains a 6-cyl., 40 h.p. engine, gasoline tanks, bilge pump, electric light outfit, and compressor for refrigerating plant. The top of the engine room skylights forms the bridge. At the after end of the engine room will be another extra-heavy water-tight bulkhead. Aft of the engine room will be the owner's stateroom, which is exceptionally large, being 7 feet by 14 feet, and contains large bed, davenport, bureau, wash stand and wardrobe. The main companionway comes down just aft of the stateroom in the center. On the port side of the companion is located the bath room, which contains tub, water closet and lavatory. On the starboard side is a vestibule and wardrobe and oilskin lockers. Next aft is the main cabin 8 feet long with transom and lockers on each side. Aft of the main saloon under the raised poop comes the guest's stateroom containing berth, davenport, lockers, bureau and washstand. Aft of this stateroom is the lazarette, which is 12 feet long and quite roomy. The boat for its length and draft is very roomy, and no doubt will make an excellent boat for Southern waters.

A 42-Foot Ferry Launch.

DESIGNED by Wm. J. Deed, Jr., of Boston, Mass., this is a slightly new form of high speed express launch, designed to carry the owner from business to seaside home, and as part of the trip must be on open water, a high flaring bow, with well crowned deck and house well inboard is necessary to shed any broken water.

The cabin arrangement is quite novel. The galley fittings when not in use are obscured by a curtain. The addition of the galley makes this boat desirable for day use, combining speed with a modest amount of accommodation. The motor is a 25-40 h.p. Type B Sterling, which should drive this hull from 12 to 17 miles per hour.

The displacement is pretty well concentrated at the middle of the boat, giving a large midship section with fine ends, such as the successful torpedo boats have. This allows of dropping the motor and cabin floor and permits greater accommodation on the dimensions.



Sections through the Wilby 36-foot semi-cruiser.

36-Foot Semi-Cruiser.

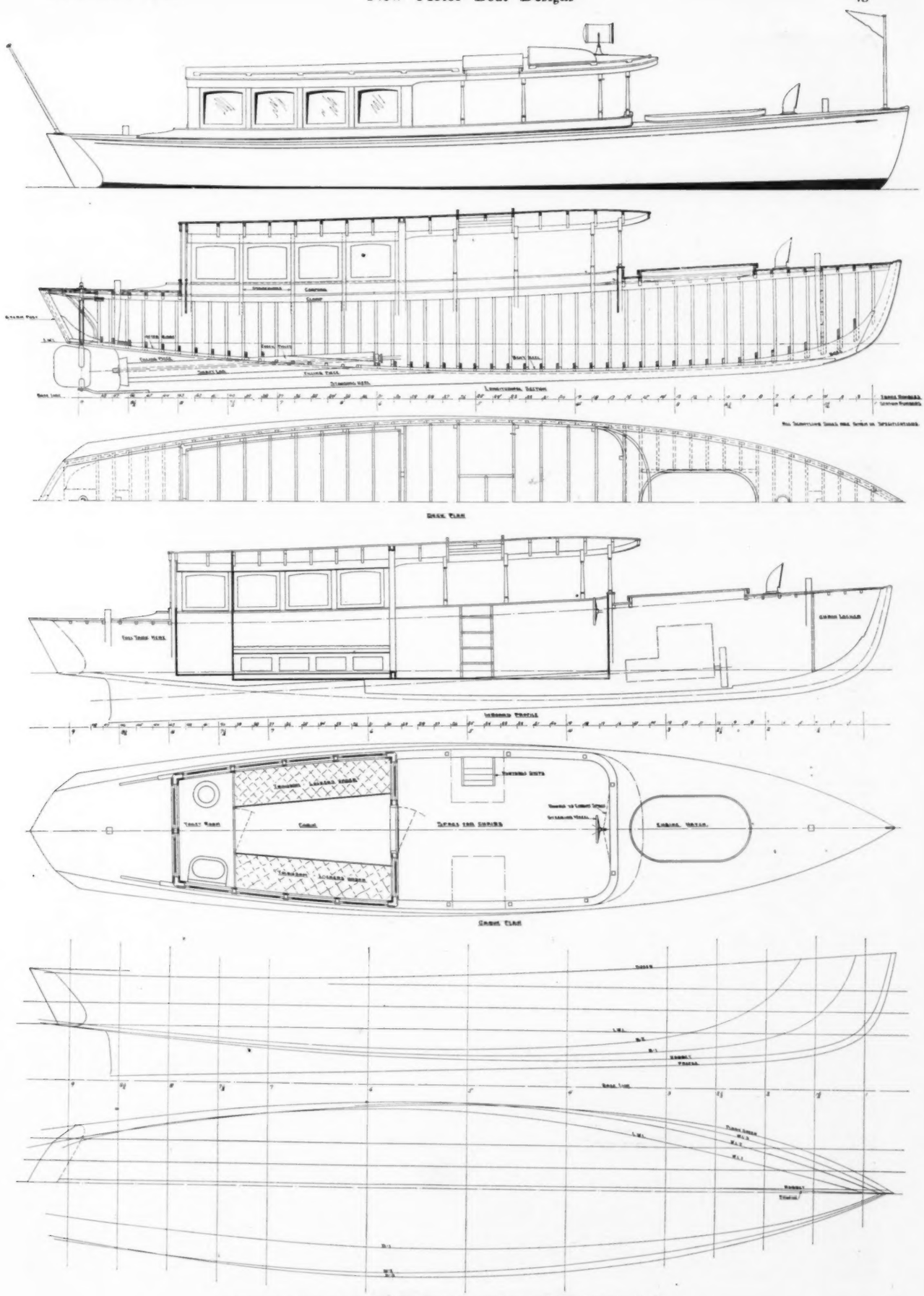
AN attractive form of semi-cruiser is shown in the accompanying design from the office of Carlton Wilby, naval architect, of Detroit, Mich.

As, in this case, it was not necessary to provide for heavy weather, the cockpit has been located amidships with the cabin aft; this arrangement having the advantage of giving the owner and his friends an unobstructed view ahead. The engine, a 3-cylinder, 18 h.p. machine, is located under deck forward of cockpit, being easily accessible through doors in forward cockpit bulkhead, and also through deck hatch.

The boat is entirely under the control of the helmsman; steering wheel and all engine controls being brought to forward bulkhead. The cabin is merely an enclosed shelter for bad weather, being fitted only with transoms and toilet room. Large windows are provided, arranged to drop into pockets, so that in nice weather the cabin can be made almost as open as the cockpit.

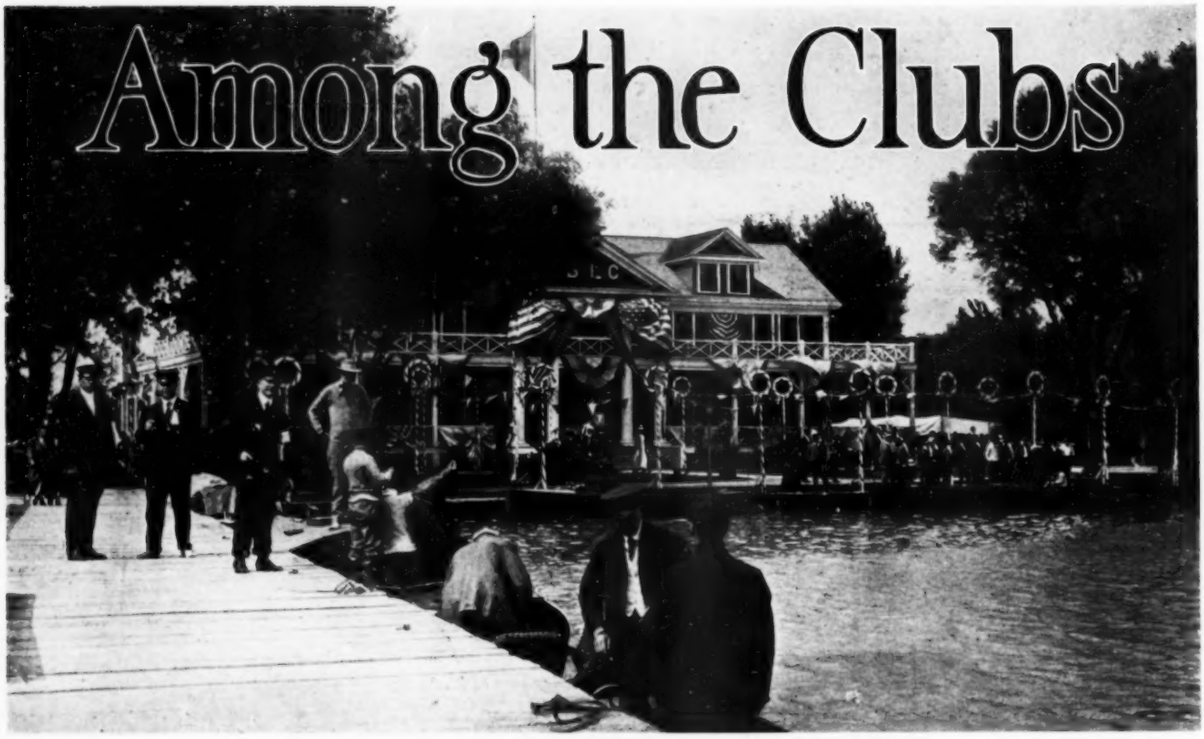
In construction, this boat is fairly heavy, with ⅞ planking and frames 1⅛x1⅜ spaced about 8 inches. Stern and standing keel are of white oak, sided 3½ inches. A bent keelson of white oak, 1⅜x5½, is also fitted, to form back-rabbet for planking; heels of frames amidships being fastened on top of this keelson, and cross connected with oak floors.

The dimensions of this boat are 36 feet 4 inches over all, 33 feet 8 inches waterline, 7 feet 2 inches beam, 2 feet 2 inches draft.



The 36-foot semi-cruiser designed by Carlton Wilby, Detroit, Mich.

Among the Clubs



At the Buffalo Launch Club, during the recent successful carnival.

THE photograph above shows the house of the Buffalo Launch Club on Grand Island in the Niagara River, during the carnival of water sports that the club held September 4, 5 and 6. Standing on the dock are a trio of the club's officers—(from left to right) Secretary Frank Martin, Dock Captain Harry King, and Commodore Fred Fenster.

The races were very successful. Hoosier Boy, La Truda, Red Head, and Arab III were among the well known boats competing. There was a special program of canoe, rowing and swimming contests, and gymkana events to keep the thousands of visitors interested. The value of the trophies and prizes put up by the club aggregated $2,500. The carnival was such a success that it was decided to make it an annual event, and it will be held next season on the same dates in September.

* * *

Ventnor Motor Boat Club, Atlantic City, N. J.—The following officers for the coming year were elected at the annual meeting: Commodore, Joseph Thompson; vice-commodore, M. E. Brigham; rear-commodore, Edwin E. Hall; fleet captain, C. Claude Scull; fleet chaplain, Rev. William Tracy, D. D.; fleet surgeon, Newton W. Knauer; assistant secretary, Enoch Turner; treasurer, J. Vaughan Mathis. Trustees: Richard R. Albertson, Lewis T. Imlay, Theodore W. Shimpf, Edwin H. Stulb.

* * *

Cliff Motor Boat Club, Sea Cliff, N. Y.—The club recently elected the following officers: Commodore, Ernest R. Ball; vice-commodore, Dr. N. D. Graham; rear-commodore, L. J. Harvey; fleet captain, Arthur Tilley; secretary, W. H. Mershon; treasurer, Charles W. Sniffen; financial secretary, Charles E. Doolittle. Directors: James Brengal, James C. Duff, L. J. Harvey, Henry Greishauber, Edward Watson.

* * *

Cape Vincent Motor Boat Club, Cape Vincent N. Y.—This new club is headed by the following officers: Commodore, R. J. J. Newman; vice-commodore, James E. Stanley; captain, R. W. Wenborne; treasurer, Wilfred E. Dodge; secretary, Harry A. Ainsworth.

* * *

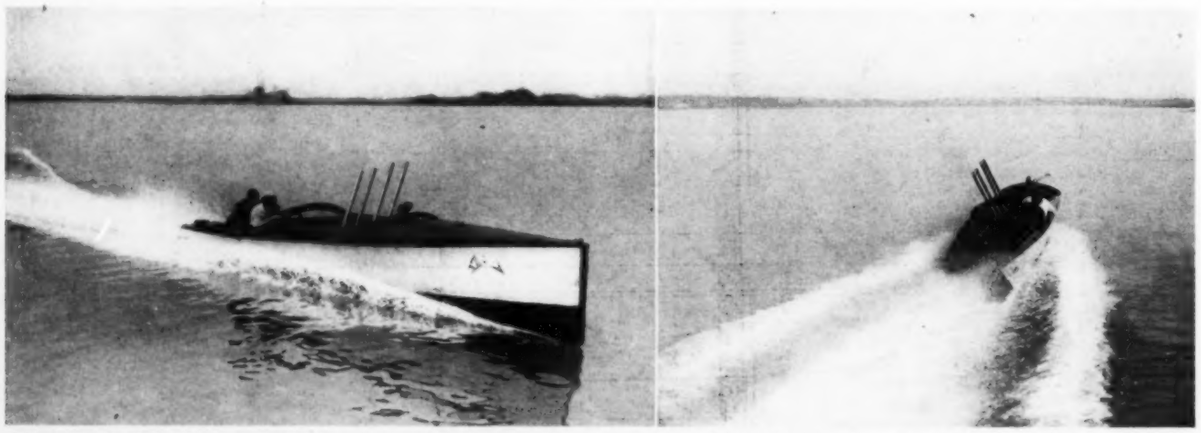
Gloucester City Motor Boat Association, Gloucester City, N. J.—This is a prosperous organization with 174 members, 98 of whom are motor boat owners. The officers for the coming year are: Commodore, Frank Bennett; chief navigator, Thomas G. Giberson; captain, William F. Killian; chief engineer, Edward Threfall.

* * *

Louisville Boat Club, Louisville, Ky.—The Louisville Boat Club recently elected the following officers: President, W. A. Colston; vice-president, Thomas J. Snead; secretary and treasurer, Smith Melton. Executive committee: Charles Jones, Edmund Meriwether, Cary Tabb. The treasurer reported that the club was entirely free from debt, and that $1,000 had been spent on improvements dur- the past year.

* * *

National Power Boat Association.—A meeting of the executive committee of the association was held in Detroit on October 2. This organization has nothing to do with control of racing, but was formed to look after the legislative interests of motor boatmen, and to further the passage of laws in the interest of motor boating. Among the appointments made as vice-presidents of the association were Commodore C. R. Claghorn, of the



Harry T. Vars' La Truda, a Buffalo champion. On September 11, when she defeated Hoosier Boy, La Truda developed an average speed of 29.84 miles per hour in the 20-mile race.

Savallo.—Mr. C. K. Bispham's 50-foot runabout designed by Fred D. Lawley. Her plans appeared on page 40 of Motor Boating for September.

Tacoma (Wash.) Yacht Club, Dr. J. W. Dixon, of Burlington, Ia., and Commodore Fred C. Kelley, of the Remlik Boat Club of Binghamton, N. Y.

* * *

San Francisco Bay Cruising Motor Boat Challenge Cup.—This is the official title of a trophy which has been presented by Frederick A. Robbins, an enthusiastic motor boatman of the San Francisco Yacht Club. The cup, which is to be a perpetual challenge trophy, has been turned over to this club, which will be the first defender. It is open to challenge by any recognized yacht or motor boat club of San Francisco Bay and its tributaries, having a membership of twenty-five or more. Challenging boats must be propelled by internal combustion motors, have trunk or hunting cabin, cockpit, if there is one, to be self-bailing, and the boats must have sleeping and cooking accommodations for at least two, and be equipped in accordance with the U. S. Government regulations. The deed of gift names a course from Sausalito to Southampton lighthouse, around Alcatraz, and return to Sausalito.

* * *

Pacific International Power Boat Association.—A meeting of the association was held a short time ago, at which the delegates outlined the plans for the long distance cruising race to take place in June, 1910. This year the race was run from Vancouver, B. C., to Seattle, Wash., but the racers will not touch Seattle in the coming race. The course will be about 230 miles, starting off the Tacoma Yacht Club's float at Tacoma, rounding the the stake buoy in English Bay, off Vancouver, and finishing at Victoria, B. C. At the conclusion of the race the St. James Yacht Club of Victoria will hold its annual regatta. Much of the long distance race lies in the Straits, where the heavy weather which is almost to be expected requires good seagoing qualities.

* * *

Pensacola Yacht and Motor Boat Club, Pensacola, Fla.—This club will conduct a motor boat regatta at Pensacola November 9 to 12, open to all comers. Valuable trophies have been put up for various classes, speed boats thirty feet and over, speed boats twenty to thirty feet, semi-speed boats and cruisers.

* * *

Hammond Motor Boat Club, Hammond, Ind.—The club's new officers are as follows Commodore, G. W. Hunter; vice-commodore, W. Roy; rear-commodore, A. J. R. Hill; secretary, E. E. Fricke; treasurer, W. Leytse; fleet captain, F. Seestadt; judge advocate, J. Lowden. This is a new club and only recently completed its club house and grounds.

* * *

Haverhill Show.—Information has just been received regarding the show of marine engines and accessories to be held at Haverhill, Mass., January 10 to 17. The Crescent Motor Boat Club will conduct the show, and have secured three large halls for that purpose.

* * *

The Yachtsmen's Club, Philadelphia, Pa.—The Yachtsmen's Club is making plans already for the motor boat races to be held next summer along the Jersey coast from Bay Head to Cape May, and in order to insure the co-operation of as many clubs as possible in arranging satisfactory dates and to interest outside contestants, a call has been issued for a meeting of delegates at the Yachtsmen's Club.

Long Distance Cruising Races of 1909

New York to Bermuda Race, 748 statute miles—June 5. Motor Boat Club of America. Won byHeather, Richmond Levering, Cincinnati, Ohio. Time, 80h. 56m. 18s.

Bermuda to New York Race—June 14. Crescent Athletic Club. Won by Ilys, J. G. N. Whitaker, Philadelphia, Pa. Time, 79h. 32m.

Block Island Race, Huckleberry Island to Block Island, 115 miles—June 19. New York Athletic Club. Won by Martha, Paul Kossek, New York.

Pacific International Race, Vancouver to Seattle, 230 miles—June 29. Pacific International P. B. A. Won by Soya, Capt. Edgar Ames, Seattle, Wash. Time, 21h. 30m.

New York to Albany and return, 270 miles—July 3. New York Motor Boat Club. Won by Martha, Paul Kossek, New York.

"Capital to Coast" Race, Albany to New York, 135.7 miles—July 5. Albany Yacht Club. Won by Irene II, S. W. Granbery, Newark, N. J. Time, 14h. 25m.

Yachtsmen's Ocean Race, off Beach Haven, N. J., 87.5 miles—July 10. Yachtsmen's Club of Philadelphia. Won by Lady Maud, Dr. C. S. Street.

Marblehead Race, Gravesend Bay to Marblehead, 285 miles—July 17. Crescent Athletic Club. Won by Elmo II, F. D. Giles, Jr., New York.

Around Long Island, 252 miles—August 7. Colonial Yacht Club. Won by Irene II, S. W. Granbery, Newark, N. J. Time, 29h. 49m. 18s.

Lake Ontario Race, 290 miles—August 12. Rochester Yacht Club. Won by Satanita, Commodore Thomas B. Pritchard, Rochester, N. Y. Time, 27h. 22m. 28s.

Toledo Race, 164 miles—August 21. Toledo Yacht Club. Winner in Class A (over 55 feet), Roslyn, Marshall Sheppey, Toledo. Elapsed time, 14h. 47m. 20s.

A Gold Hunting Auxiliary.

By S. S. Scott.

EVERY yachtsman loves adventure or, at least, to read about it, but in Baltimore there is now being fitted out an expedition that will rival any ever planned by the Pizarros or the Cortezes of centuries ago. The object of the expedition is to go to the Straits Le Maire on the southern coast of South America, not far from Cape Horn, and seek the gold believed to be there in large quantities.

The expedition is being organized by Mr. Gerald T. Hill, son of Dr. Charles G. Hill, the famous alienist of the Monumental City, and for the trip he has purchased the auxiliary schooner yacht Celeste, a picture of which is shown. The Celeste is 85 feet on deck, 17 feet beam, draws 7 feet without her centerboard and is equipped with two 12 horsepower White engines driving twin screws.

Mr. Hill's plans are to get not less than eight young men, each to put in their share of the expense, and sail for the gold fields, stopping here and there along the route. The prospect is a pleasing one and Mr. Hill has been deluged with applications from men in all walks of life eager to go on the cruise.

Celeste. A gold hunting auxiliary.

Motor Boat Shows of 1910.

Already preparations are being made for the coming show season. Information is at hand regarding four of the exhibitions, those to be held in Boston, New York, Buffalo and Chicago, and there are more to be heard from. Last spring other shows were held in many cities, among them Detroit, Philadelphia, Rochester and Portland, Me.

Boston Show.

The exhibition of the New England Engine and Boat Association will be held in the Mechanics Building, January 22 to 29. This will be under the management of the secretary of the association, Chester I. Campbell, 5 Park Square, Boston.

New York.

The motor boat show of the National Association of Engine and Boat Manufacturers will open at Madison Square Garden at noon on February 19 and close at 11 P. M. on February 26. All communications regarding floor space, etc., should be addressed to the manager of the show, J. A. H. Dressel, 138 W. 42d St., New York City.

Buffalo.

Buffalo's third annual Power Boat and Sportsmen's Show will be held at Convention Hall, March 19 to 26, under the management of the Buffalo Launch Club. Communications should be addressed to Dai H. Lewis, 760 Main St., Buffalo.

Chicago.

The Chicago Show of the Western manufacturers will be held March 26 to April 2, in the First Regiment Armory, 16th St. and Michigan Ave. This will be under the management of Chester I. Campbell, who also manages the Boston show.

Motors for Motor Boats.

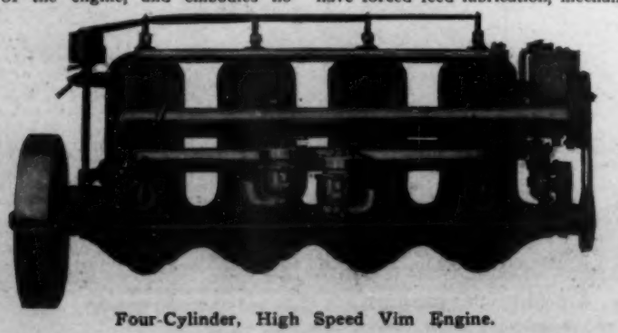
Reynolds Disc Valve Motor.

Reynolds Gas Engine Company, 26 Franklin St., Detroit, Mich.—These engines, which are of the four-cycle type, are unique in that a single rotary disc is used to perform the usual functions of the intake and exhaust valves, their operating cams, springs, etc. Besides giving the engine a very clean cut and simple appearance, all parts being fully enclosed, and thus easy of proper lubrication and care, the areas of the valve ports are greater and of greater freedom than those possible in an engine in which the ordinary form of poppet valve is used. As will be seen from our "transparent" view of the mechanism, the valve is a ported disc packed against loss of compression by the pressures within the cylinder. It operates against the inner surface of the cylinder head, is force lubricated and fully water jacketed. The two-to-one gears are a pair of spurs enclosed by a plate over the top of the cylinder head. An extension of the disc spindle carries the timer. It is built in 1, 2 and 4 cylinders, ranging in power from 3 to 25 h.p. and in price with all accessories and propeller from $82 to $365. It is to be noted that the intake port for the attachment of the carbureter is at the lowest point of the water jacket and that the intake passage extends up the side of the cylinder casting so that the incoming mixture is exposed to the jacket heat, which very materially assists vaporization of the fuel. The circulating pump is of the gear type and discharges directly into the lower part of the cylinder jacket.

Disc Valve Mechanism in Semi-transparency.

Vim Motors, New High Speed Type.

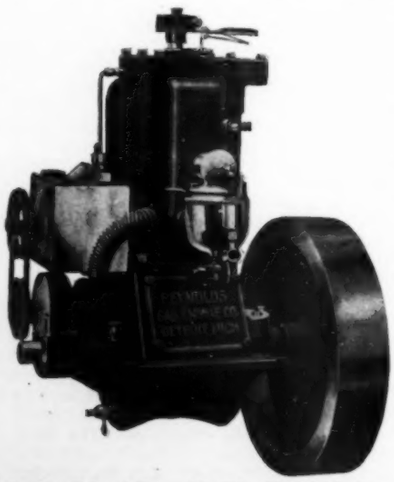
Vim Motor Manufacturing Co., Sandusky, Ohio.—This company has covered a new principle in two-cycle engine construction by patents. This new design relates to a system of intake ports, used in the company's high speed product, through the use of which it is claimed that the engines will deliver a 35 per cent increase in power compared with the ordinary three-port, two-cycle engine of the same bore and stroke. The new design has added no complications to the construction or operation of the engine, and embodies no springs or valves whatever. Its chief feature is a system of separate and independent intake ports, the areas of which are much greater than those possible in the ordinary type. This makes for full charges at high speeds and it is claimed that these engines will show their rating increase up to speeds of 1,300 revolutions per minute. The cut herewith shows the four-cylinder type with its two carbureters, force feed oiler and Unisparker ignition system. These motors are built in 2, 3 and 4 cylinder units in powers ranging from 13-15 to 40-55 h.p. In addition to the above increase in power and speed range, it is claimed that the new Vim will run at a lower speed than any other two- or four-cycle engine now built. The Vim line for 1910 will comprise 19 sizes in three types: four heavy duty motors; ten high speed motors; and five extreme high speed motors.



Four-Cylinder, High Speed Vim Engine.

Doman Marine Motors.

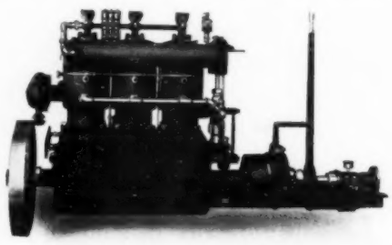
H. C. Doman Company, Oshkosh, Wis.—These engines are built in a thoroughly equipped factory devoted exclusively to the manufacture of marine engines. The factory is fitted with the latest and most modern machine tools and all parts are finished in jigs and templates, thereby assuring the purchaser of perfect interchangeability and satisfaction in case repairs or replacements are necessary. Great care is exercised in securing perfection of balance in all engines, thereby eliminating undesirable vibration with its attendant evils. All these engines have extra long bearing surfaces throughout, are easily accessible for inspection or adjustment, and develop their rated powers at normal speed. A full day of testing is given each engine and after having passed the test it is sent to the enameling room and again given a short test run after the enameling is completed. All these engines have forced feed lubrication, mechanically operated intake and exhaust valves, water cooled exhaust piping, etc. They are built in the following sizes: 2 cylinder, 5 h.p.; 3 cylinder, 7 h.p.; 2 cylinder, 10 h.p.; 3 cylinder, 15 h.p.; 4 cylinder, 20 h.p.; 4 cylinder, 30 h.p.; 6 cylinder, 30 h.p.; 6 cylinder, 45 h.p.; 4 cylinder, 55 h.p.; and 8 cylinder, 200 h.p. The heavy duty engines are built in sizes giving 20, 30 and 40 h.p., of 2, 3 and 4 cylinders, respectively.



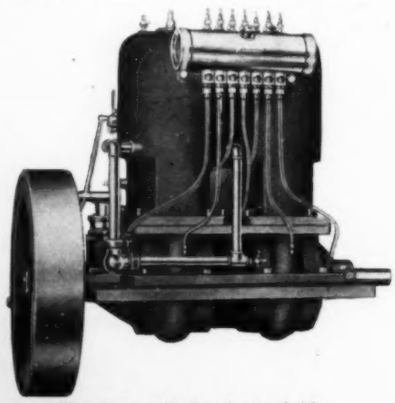
Intake Side of Reynolds Disc Valve Engine.

Springfield Motors.

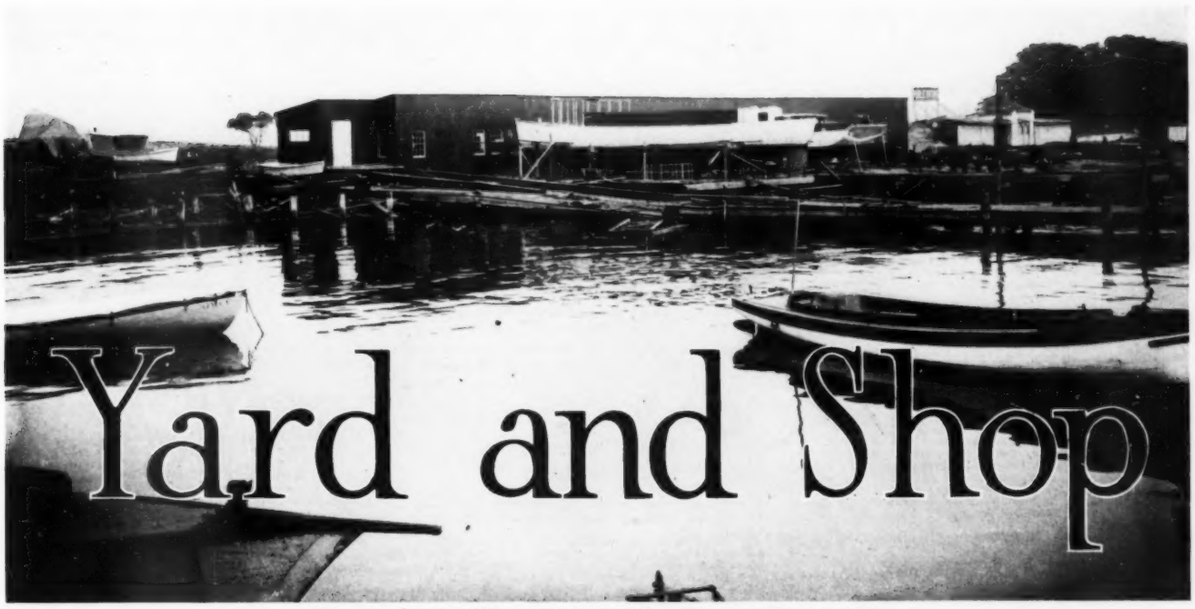
Springfield Motor Company, Springfield, Mass.—Built in both heavy duty and high speed types, the former in one and two cylinders and the latter in two and four cylinders, these engines can be had with either make-and-break or jump spark ignition, at the option of the purchaser. The highest quality of materials is used throughout, together with the highest grade of workmanship and design. The lower portion of the crankcase is a single casting with the semi-crank pits and strongly braced by integral webs and flanges. To this bed the upper part of the case is bolted, and to this upper part is attached the cylinder or cylinders, depending upon the type and size of the engine. In the multiple cylinder engines the cylinders are cast in pairs with a common and integral water jacket and with single intake and exhaust ports for both the gases and the water for cooling the cylinders. The igniters or spark plugs are located in the cylinder heads, and, in those engines that are fitted with jump spark ignition, the timer is a simple insulating disc with metal inserts fitted with a handle for controlling the advance and retard. Against the face of this disc, for the purpose of closing the circuit to the several coils in turn, operates a spring pressed brush on the end of an extension of the plunger water pump eccentric link. The angular and reciprocating motions of the link produce a circular motion of this extension tip, thus commutating the current. A large multiple feed oiler individually supplies each crank bearing, each cylinder and each crank pit with lubricant.



A Three-Cylinder Doman Motor.



The Two-cylinder Springfield.



Yard and Shop

The plant of the Wilson Yacht Building Co. at Baltimore, Md.

General Trade News.

The Boston Engineering Company of Boston, Mass., has become distributor for Ferro engines, reverse gears and parts, for Eastern Massachusetts. A stock will be carried to enable immediate deliveries.

Truscott Boat Manufacturing Company, St. Joseph, Mich. It has been found necessary in order to fill orders on time to adopt the policy of not accepting orders for large cabin craft after the first of January, for delivery earlier than the 15th of the following July.

Belle Island Motor Company, Detroit, Mich. The company is pointing to the recent Stafford Cup and Ketcham Trophy Races held under the auspices of the Saratoga Lake Association, in which Mrs. J. S. Mallory with Queta, the eighteen-footer, equipped with a 2 h.p. Belle Isle engine, won second and first places, respectively, as an indication not only of what women can do in the way of operating motor boats but of the reliability and consistent performing of the modern gasoline motor boat engine.

Osborne Electric Company, Detroit.—Harry R. Brate, formerly with the Kokomo Electric Company, has taken charge of the selling end.

Valley Boat and Engine Company, Baldwinsville, N. Y. A thirty-one-foot cruising boat has just been shipped to Columbia, S. A., to be used on the Atrato River. The order is unique in that every bolt, nail, brad and screw, as well as the complete equipment of tanks, anchors, bits, lights and even a K. D. dhingy were included.

The Xargil Manufacturing Company, Utica, N. Y., who make mufflers for motor boats and also for motor cars, recently moved into their new plant at 34 Broadway, Utica. The large three-story brick building is equipped with machinery to turn out over 200,000 mufflers a year.

The K-W Ignition Company, Cleveland, Ohio, have again doubled the floor space of their plant, and will greatly increase their output of magnetos and coils.

Breeze Carbureter Co., 276 Halsey St., Newark, N. J.—A re-inforced concrete factory is being constructed which will be devoted to the manufacture of Breeze carbureters, strainers, checkvalves, etc. The new building will be located on a tract of land on South St., between Jefferson and Pacific in Newark. A modern equipment throughout will be fitted and the machine shop alone will have a floor space of over 10,000 square feet.

Lackawana Manufacturing Co., Buffalo, N. Y.—Clayton Von Culin, who was with the Detroit Auto-Marine Co. in 1906, later going to their New York office, at 79 Cortlandt St., as assistant to the general manager, Francis G. Hall, and later filling the same capacity in the office of the Ferro Machine & Foundry Co., has just resigned from the post of manager of sales in the Eastern branch of the Ferro Company to become manager of the New York office of the Lackawana Mfg. Co., at 126 Liberty St.

Trade Literature Received.

E. Gerry Emmons, Swampscott, Mass. Complete 70-page illustrated catalog of Emmon's small boats of all types, including open and hunting cabin launches and motor dories.

The motor boat Farthest North, with Ferro engine which was used by Dr. Cook on his polar expedition.

B. B. Crowinshield, Boston, Mass. Marine Directory, 1909.

Davis-Bournonville Company, 90 West St., New York City. Complete illustrated catalog of the Davis-Bournonville oxy-acetylene welding and cutting apparatus.

Fox Reversible Gasoline Engine Company, Newport, Ky. Reprinted account of 1554 mile run of Br'er Fox II.

Byrne, Kingston & Company, Kokomo, Ind. Circular of Kingston carburetors, mufflers, and circulating and bilge pumps.

Valley Boat & Engine Company, Baldwinsville, N. Y. "The Boat That Jack Built."

The Holmes Motor Company, West Mystic, Conn. Price list and catalog illustrating the Holmes "get-at-able" engines.

Boston Cork Works, 52 Purchase St., Boston, Mass. Circular illustrating their cork fenders life preservers, and cushions, compasses and binnacles, canvas buckets, etc.

Foreign Trade Opportunities.

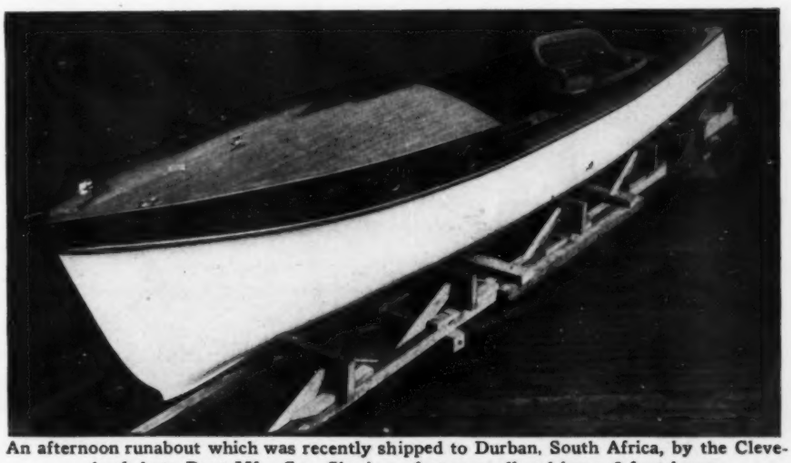
[Inquiries in which addresses are omitted are on file at Bureau of Manufactures. In applying for addresses refer to file number.]

No. 3933.—*Motor boats for France.*—A report has been received from an American consul in France in which it is stated that there is a limited market in his district for the sale of American motor boats. He furnishes the name of a concern that would be glad to receive catalogues and price lists of such goods and will endeavor to promote sales of the same.

No. 3940.—*Representation in New Zealand.*—An American business man writes to the Bureau of Manufactures that he will shortly leave for New Zealand to open an office for the purpose of promoting the sale of American goods in that region. He desires to hear from American firms desiring representation there.

No. 3952.—*Motor boats for the West Indies.*—The Bureau of Manufactures is in receipt of a communication from a New York export and import company requesting to be put in touch with manufacturers of motor boats suitable for the West Indies, as they are in the market for the same.

No. 3975.—*Motor boats and patent lights catalogues.*—Inquiries have been received at an American consulate in the Far East for catalogues covering kerosene and gasoline motor boats and kerosene and gasoline patent lamps. There should be a good market for these articles, but as natives will be obliged to operate them it is requested that catalogues covering machines and lamps of the simplest mechanism and the least liable to need repairs be especially desired. Catalogues should specify full particulars as to trade discounts, charges for packing, methods of shipping, and expenses of operation. The consulate will forward the catalogues to the interested parties.



An afternoon runabout which was recently shipped to Durban, South Africa, by the Cleveland Auto Boat Mfg. Co. She is 32 feet over all and has a 6 foot beam.

The Month's Motor Boat Patents

ISSUED SEPTEMBER 14, 1909.

933,708. **Screw-Propeller.** Daniel F. Lawrence, Brandon, Vt., assignor of one-half to Judson H. Cole, Brandon, Vt. Filed May 28, 1908.

933,798. **Parallel-Ruler.** Henry Van Altena, Somerset County, N. J. Filed May 5, 1909.

933,881. **Oil-Can.** Tristram D. Brown, Canandaigua, N. Y., assignor to The Lisk Manufacturing Co., Canandaigua, N. Y. Filed July 16, 1906.

933,888. **Float-Controlled Oil-Supply Device for Gas-Engines.** James A. Charter, Chicago, Ill., assignor to Austin Manufacturing Co., Chicago, Ill., a Corporation of Illinois. Filed July 28, 1908.

933,891. **Bilge-Water Discharger.** Charles A. Curry, Brooklyn, N. Y., assignor of one-half to George Freeman, Brooklyn, N. Y. Filed Nov. 28, 1908.

933,966. **Internal-Combustion Engine.** David H. Coles, Brooklyn, N. Y. Filed Oct. 16, 1908.

934,111. **Oiling Device.** Joseph Vildina, Chicago, Ill. Filed Nov. 27, 1908.

934,140. **Universal Joint.** Daniel Corcoran, Yonkers, N. Y. Filed Aug. 14, 1908.

934,160. **Shaft-Coupling.** John P. Golden, Columbus, Ga. Filed Jan. 29, 1909.

934,164. **Adjustable Crank for Internal-Combustion Engines.** Conrad J. Gotti, Tuckahoe, N. Y. Filed Feb. 16, 1909.

934,180. **Adjustable Fastener for Hinged Closures.** John Jenks, San Diego, Cal. Filed July 19, 1909.

934,289. **Stora-e-Chamber Stuffing-Box.** Fred A. Dailey, St. Paul, and Barney Long, Minneapolis, Minn., assignors to Plunger Plastic Packing Company, St. Paul, Minn., a Corporation of Minnesota. Filed March 31, 1909.

934,360. **Means for Supplying Oil to Carburetors.** Matthew Steel, Jr., Gosforth, England. Filed April 24, 1908.

934,367. **Carbureter.** Matthew Steel, Jr., Gosforth, England. Filed April 24, 1908.

934,373. **Boat.** Frank M. Thompson, East Liverpool, Ohio, assignor of one-fourth to J. Floyd McDole, East Liverpool, Ohio. Filed April 27, 1909.

ISSUED SEPTEMBER 21, 1909.

934,427. **Spark-Plug for Gas-Engines.** David H. Coles, Brooklyn, N. Y. Filed March 29, 1909.

934,438. **Lantern.** William S. Hamm, Hubbard Woods, Ill., assignor to The Adams & Westlake Company, Chicago, Ill., a Corporation of Illinois. Filed June 1, 1908.

934,576. **Engine-Starter.** Urban M. Seyler, Nashville, Ill., assignor of one-third to Rollo R. Snyder, and one-third to J. M. Hassinger, Nashville, Ill. Filed Oct. 17, 1908.

934,642. **Valve-Reseating Tool.** Thomas B. Williams, Orange, Mass., assignor to The Leavitt Machine Company, Orange, Mass. Filed March 12, 1909.

934,675. **Crank-Case for Engines.** John P. Landgraf, Mishawaka, Ind. Filed April 17, 1909.

934,690. **Protecting Device for Explosion-Engines.** Julius Lengel, West Philadelphia, Pa. Filed Dec. 9, 1908.

934,714. **Electric Condenser.** Edouard Deniéport, Suresnes, France. Filed May 23, 1908.

934,715. **Spark-Distributer.** Edouard Deniéport, Paris, France. Filed Sept. 30, 1908.

934,722. **Lubricator.** Charles E. Graebing, Freedom, Pa. Filed Jan. 6, 1909.

934,771. **Aeroplane and Hydroplane.** Wallace R. Turnbull, Rothesay, New Brunswick, Canada. Filed April 2, 1906.

934,824. **Speed-Indicator for Ships and Water-Currents.** Adolf Mensing, Berlin, Germany. Filed July 12, 1906.

934,829. **Anchor.** Reinert Olsen, San Francisco, Cal. Filed Feb. 11, 1909.

934,858. **Apparatus for Raising Submerged Ships and Other Bodies.** Benjamin Reinier, Vidauban, France. Filed March 27, 1907.

934,841. **Range-Finder.** Hilary H. Royall, U. S. Navy. Filed May 22, 1909.

934,842. **Sparker Mechanism for Internal-Combustion Engines.** Henry Schaacke and John T. Cowie, New Westminster, British Columbia, Canada. Filed July 27, 1908.

934,855. **Life-Saving Device.** Harry P. Teufel, Pittsburg, Pa. Filed Dec. 10, 1908.

934,904. **Bearing-Taking Device for Compass-Hoods.** Alexander Fey, Hamburg, Germany. Filed Sept. 26, 1908.

934,953. **Lubricator.** George E. Witt, San Francisco, Cal. Filed Sept. 9, 1908.

ISSUED SEPTEMBER 28, 1909.

935,091. **Gas-Engine.** John T. Cowie, New Westminster, British Columbia, Canada, assignor of one-half to Henry Schaacke, New Westminster, Canada. Filed Nov. 28, 1906.

935,154. **Dynamometer Thermo-Couple for Explosion-Engines.** Nevil M. Hopkins, Washington, D. C. Filed July 28, 1908.

935,155. **Marine Table.** John H. Jones, Farmington, Del., assignor of one-half to James H. Andrew, Farmington, Del. Filed June 22, 1908.

935,198. **Paddle-Wheel Vessel.** Donald Fletcher, Tacoma, Wash. Filed June 17, 1909.

935,217. **Pressure-Regulating and Shut-Off Valve Combined.** Cosby D. Miller, St. Joseph, Mo. Filed June 1, 1909.

935,252. **Storage-Battery Electrode.** Louis H. Flanders, Wilkinsburg, Pa., assignor to The Westinghouse Machine Company, a Corporation of Pennsylvania. Filed Dec. 15, 1905.

935,316. **Process of Preparing Storage-Battery Plates.** William Morrison, Chicago, Ill., assignor, by mesne assignments, to David P. Perry, Chicago, Ill. Filed Dec. 26, 1903.

935,323. **Gas-Engine Admission-Valve.** Gustav B. Petsche, Philadelphia, Pa., assignor to Southwark Foundry and Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Oct. 26, 1907.

935,387. **Gasket.** Charles J. E. Mastin, Paterson, N. J. Filed June 1, 1909.

935,413. **Lock for Davits.** William J. Ryan and Lewis Tanning, New York, N. Y. Filed Dec. 11, 1908.

935,424. **Parallel-Ruler.** Frank W. Sterling, U. S. Navy. Filed Sept. 22, 1908.

935,465. **Combined Bearing and Lubricator.** Eugene M. Cruiser, Augusta, Ga. Filed Jan. 8, 1909.

935,482. **Wrench.** Alex Fresko and Bela W. Fresko, Amsterdam, Ohio. Filed Jan. 28, 1909.

935,541. **Valve.** Harry A. Owers and John C. Owers, Soham, England. Filed May 15, 1908.

935,581. **Hand-Lever.** Robert H. Bowman, Canon City, Colo. Original application filed Feb. 21, 1907. Divided and this application filed May 14, 1907.

75,351. (Trade-Mark Registered.) **Internal-Combustion Engines and Parts Thereof.** The Baum Iron Co., Omaha, Nebr. Filed Dec. 12, 1908. Published July 27, 1909.

ISSUED OCTOBER 5, 1909.

935,718. **Combined Charging and Feeding Device for Gasoline Engines.** Louis W. Witry, Waterloo, Iowa, assignor to Waterloo Gasoline Engine Company, Waterloo, Iowa. Filed Aug. 14, 1908.

935,735. **Acetylene-Gas Burner.** Arthur Bray, Leeds, England. Filed March 2, 1909.

935,740. **Compound Gasoline-Engine.** Lawrence C. Burton, Columbus, Ohio, assignor of one-half to John Shrum, Columbus, Ohio. Filed Dec. 11, 1908.

935,809. **Engine or Motor.** Edward P. Parkhurst, Moline, Ill. Filed June 28, 1907.

935,817. **Ship Construction.** Thomas M. Rees, Pittsburg, Pa. Filed Dec. 19, 1908.

935,833. **Carbureter.** William K. Bassford, Perth Amboy, N. J., assignor to J. P. Hall, East Orange, N. J. Filed Nov. 24, 1908.

935,860. **Protractor.** Frank Probst, Elizabeth, N. J. Filed Oct. 15, 1908.

935,923. **Condenser.** Frank J. Newton, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Nov. 8, 1906.

935,931. **High-Tension Spark-Plug.** John Sharp and William Sharp, Cleveland, Ohio. Filed Dec. 9, 1908.

935,948. **Lubricator.** William O. Turner, Beaumont, Tex. Filed June 16, 1908. Renewed Sept. 1, 1909.

935,989. **Gas-Engine Valve.** Henry L. Jessen, Alameda, Cal. Filed March 26, 1908.

936,001. **Dry-Cell Tester.** Edwin S. Lincoln, Brookline, Mass. Filed March 6, 1908.

936,064. **Carbureter.** Walter C. Westaway, Rockford, Ill., assignor, by direct and mesne assignments, to J. W. Duntley, Chicago, Ill. Filed Sept. 28, 1905.

936,118. **Carbureter.** George T. Glover, Chicago, Ill. Filed July 10, 1906.

936,253. **Chime-Whistle.** Frank Parizek, Chicago, Ill., assignor to Quincy Brass Works, Chicago, Ill., a Corporation of Illinois. Filed Dec. 21, 1908.

75,467. (Trade-Mark Registered.) **Insulated Wire and Insulated Wire Cables.** Boston Insulated Wire & Cable Company, Boston, Mass. Filed April 16, 1909. Published August 3, 1909.

The Month's Record of Sales and Charters.

BON TEMPS—65 foot motor yacht, 40 h.p., sold by S. H. Brown to B. Haldeman.—(Henry J. Gielow.)

CHIC III—45 foot motor boat, 35 h.p., chartered by Whitney Lyon to G. Von Utassy, New York.—(Henry J. Gielow.)

DAISY—100 foot motor yacht, chartered by Col. Robert Galloway to Frederick A. Reed, New York.—(Stanley M. Seaman.)

GO SUM—Gasoline cruiser, sold by Warren H. Miller, Bayway, N. Y., to M. L. Felkin, Boston, Mass.—(Stanley M. Seaman.)

IDA BELL—45 foot motor yacht, 20 h.p., sold by Thomas J. Cleary, New York, to A. B. Curtis, Ecuador.—(Henry J. Gielow.)

IRENE—33 foot raised deck cruiser, 15 h.p., sold by Alfred Mestre to Bayard L. Foulke.—(Henry J. Gielow.)

IRIS (ex-OONAS)—102 foot auxiliary schooner yacht, 110 h.p., sold by Vernon C. Brown to F. M. Whitehouse.—(Henry J. Gielow.)

LA VEDETTE—50 foot gasoline cruiser, sold by Frank A. Egan to E. L. Woodard, Norfolk, Va.—(Stanley M. Seaman.)

MINNEMAH—Auxiliary yawl, sold by F. F. Carey, New York, to Capt. B. B. Bradley, Tarpon Springs, Florida.—(Stanley M. Seaman.)

NORTHERNER—37 foot hunting cabin cruiser, 25 h.p., sold by C. D. Randall to U. S. Life Saving Service.—(Henry J. Gielow.)

PICAROON—40 foot seagoing gasoline cruiser, sold by T. B. Baylies, New Bedford, Mass., to E. D. Hunter, New York, for use in Southern waters.—(Stanley M. Seaman.)

TRINGA—80 foot gasoline cruiser, 100 h.p., sold by W. M. Lovering, Taunton, Mass., to Bernhard Zahn, New York.—(Stanley M. Seaman.)

YAQUI—90 foot twin screw cruising motor boat, two 125 h.p. motors, sold by Charles Corby to W. E. Cummer, for use in Southern waters.—(William Gardner.)

Red Head —A Flush Deck Cruiser Designed to Provide Comfort.

RED HEAD was designed especially for Miss Irene Franklin, vaudeville star. The design of this boat in general is similar to the popular type of flush deck cruiser, although in general arrangement and comfortable cruising accommodations, this cruiser is especially noteworthy.

The length over all is 31 feet 6 inches, with an extreme beam of 8 feet 6 inches. The forward cabin is formed by a continuation of the planking and herein is located the owner's state-room, which is 6 feet 3 inches long, and which contains two very comfortable berths, each 30 inches wide. Forward of the owner's quarters and in the extreme bow of boat is located the gasoline tank, which is of copper, held securely in a water-tight bulkhead, which is provided with scuppers draining overboard, providing absolute safety from gasoline entering the interior of the boat in case of the tank leaking or being overfilled.

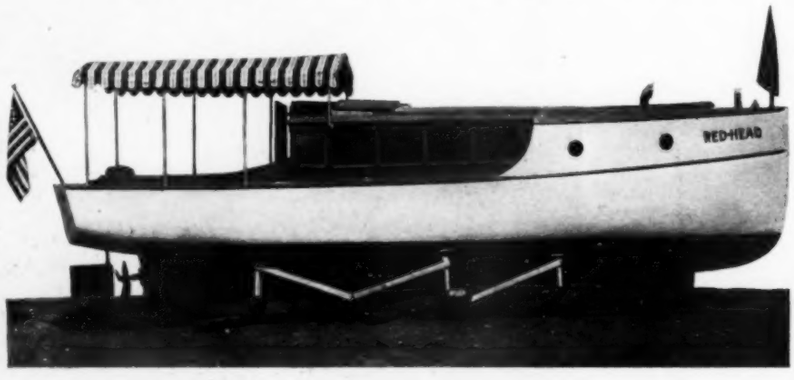
The owner's quarters are lighted and ventilated by four large swinging port lights, two on each side, and a hood ventilator on deck.

The main or after cabin is 9 feet 9 inches long and provided with eight glass windows which are arranged to drop in pockets, giving plenty of light and ventilation. The main cabin contains two full length berths. On the starboard side forward is located the toilet room which is 36 inches by 48 inches, and which may be entered from either cabin. The engine is located in the main cabin just within the after bulkhead, and on the after port side of this cabin is located the ice-box and galley sink. Fresh water for the lavatory and sink is supplied from a water tank carried under the cockpit floor. The cockpit is 7 feet 9 inches long, and left open for the use of chairs. The cockpit is water-tight and self-bailing.

The power equipment consists of one 14 h.p., two-cylinder Bridgeport motor which is provided with a reversing gear, and the controls are located at the steering wheel, which is placed on the port side of the after cabin bulkhead, making it possible for the helmsman to have complete control of the boat and power outfit.

Ignition is provided from a set of dry cells for starting, after which the current is supplied by a magneto. The exhaust is water-cooled with discharge under water. The cabins, it will be noted, are extremely roomy for a boat of this size, and there is not only excellent floor space, but a 6 feet 1 inch headroom is provided throughout. The great breadth of this boat in proportion to its length, naturally calls for very full lines, and yet with all, the boat in her recent trials showed a speed of nine miles per hour.

The design provides a boat which will cruise four people very comfortably, and in any weather.



Red Head—a 31-footer, designed to provide comfort.

New Things for Motor Boatmen.

New Attachments and Accessories That Are Offered to the Man with a Boat; The Month's Production of Devices Designed as Aids to Motor Boating.

[Under this heading will appear each month descriptions and, whenever possible, illustrations of the various devices designed to add to the pleasure and comfort of motor boating which have been brought out since the previous issue. It should be kept in mind that the department in any one issue is, as it were, only one month's instalment of the many useful things on the market, and that it will be well to consult the previous issues of MOTOR BOATING which will form, together, a very complete illustrated directory of the things the motorboatman needs.—In writing the makers of the articles shown, if our readers will mention MOTOR BOATING they will receive special attention.]

Fig. 1.—"Amperes" Pocket Meter.

"Amperes" Pocket Meters (Fig. 1).—Hoyt Electrical Instrument Works, Penacook, N. H. These meters are of the permanent magnet type, and in designing them the purpose of their use has been constantly kept in mind. The relation of the moving system to the poles of the permanent magnet is such as to insure a practically dead beat movement, with extreme sensitiveness to current changes. Every detail has been carefully looked after, even to the construction of the case, which is substantially made in one piece to insure rigidity and mechanical accuracy.

A novel design of lettering has been adopted for the dial, and it is the purpose of the makers to carry out the same idea in all instruments of this type readily to distinguish them from other meters of somewhat similar, general appearance. The instrument is about the size of a gentleman's No. 16 watch.

* * *

Fig. 2.—"All-in-One" Spark Plug.

"All-In-One" Spark Plugs (Fig. 2).—Comet Electrical Manufacturing Co., Detroit, Mich. The company claims to have evolved a spark plug which in itself is exceptionally meritorious and to have added to this plug, so as to become an integral part with it, a small priming cup. On cold mornings, all that is necessary when it is desired to start the engine is to fill each of the priming cups and then open them, allowing the fuel to enter the cylinder through the body of the spark plug. This method of introducing the priming charge insures that the fuel will be in a proper position, relative to the spark plug, to cause ready combustion and starting of the engine. At the same time the introduction of liquid gasoline directly into the plug is said to effectually clean it. The price is $1.50 each.

* * *

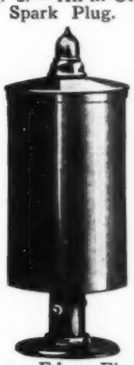


Fig. 3.—Edgar Electric Whistle.

Edgar Whistles (Fig. 3).—The Edgar Manufacturing Co., Boston, Mass. These electric whistles are especially adapted for use upon motor boats. They are simple and durable, made of brass, and produce a loud penetrating sound. The new product is greatly improved, and is offered as an electric whistle requiring a small amount of battery power, operating on four to five ordinary dry cells, giving a full blast with that amount of current. The use of this whistle on motor boats has been attended with satisfactory results, and thousands are in use. They fulfill the requirements of the United States Government Inspection Service and are sold at a low price. A catalogue will be sent to any reader of this magazine upon request.

* * *

Fig. 4.—"Standard" Compressometer.

"Standard" Compressometer (Fig. 4).—Industrial Instrument Company, Foxboro, Mass. This instrument which is furnished in all standard spark plug thread sizes is used to determine the compression pressure in an engine cylinder by screwing it in place of the spark plug and turning the engine over. One of the hands is operated by the compression pressure and accurately indicates its value while a second hand remains at the maximum value attained until reset by the button in the center of the instrument. The "Standard" has a 2½ inch dial, beveled glass front and a highly polished, solid brass case. It is substantially made, and is sold with one spark plug adapter for $5.

* * *

Fig. 5.—Weiland Supplementary Carbureter.

"Weiland" Supplementary Carbureter (Fig. 5).—American Die and Tool Co., Reading, Pa. This device can be attached to any float feed carbureter as a permanent fixture and is said to require no attention when once it has been properly adjusted. It is attached in such a way that the float level in shown in the gauge glass. The supplementary carbureter is attached to the bottom of the float chamber and the gas outlet from it to the intake pipe between the throttle and the valve chambers. It is designed to furnish a rich mixture for starting and to facilitate this operation without priming. Price, with all fittings complete, $6.

R. P. Pipe Wrench (Fig. 6).—Rogers, Prüntz & Co., Warren, Pa. In this wrench there are only three powerful and unbreakable parts. The main handle bar is made from tempered drop forged steel in the form of an I-beam, the shank or lower jaw is also of drop forged steel of the same quality, and the sleeve is cold drawn from the finest quality of seamless steel tubing. The tempered jaws will, it is said, turn the sharpest file. The grip is immediate and as the pressure is applied it becomes tighter. The release is instantaneous. The thumb does it all. As is seen, the adjustment to the work requires neither effort nor time. The thumb simply slides the lower jaw, and its sleeve, against the work and the form of the parts does the rest.

* * *

Fig. 6.—R. P. Pipe Wrench.

Read Terminals (Fig. 7).—Henry R. Read, 45 Kingston Ave., Brooklyn, N. Y. The method of applying the terminals is simple and positive. About four coils of the spiral portion of the terminal are screwed upon the strands of wire which have been laid back evenly over the outside of the insulation as shown in the cut, thereby making an easy repair possible, and a good electrical contact with each and every strand.

The electrical resistance of such a joint is low, on account of the large contact surface. When in use, where there is more or less vibration, the terminals concentrate all vibration on the spiral coils, where it is absorbed. The terminals are made in two sizes for large secondary cable and for the smaller primary wires and sell for 10 cents each.

* * *

Fig. 7.—Read Terminal.

Herz Roller Timer (Fig. 8).—Herz & Co., 295 Lafayette St., New York City. In this instrument the contact is made by a roller rolling over the ground and polished surfaces of the contacts. It consists of three main parts: the metal base, the revolving center and the insulation holding the contacts. The metal base contains imbedded and fastened, two steel cups, hardened and ground and held rigid in the base. The revolving center has a steel sleeve with two hardened steel cones, revolving between the two before mentioned steel cups, fastened in the base and running on two strings of imported English balls, contained in ball retainers. The revolving center is therefore held between two ball bearings. The insulation is made of hard vulcan fibre, and supports, tightly enclosed, the tool steel contacts over which the roller passes. The surface is turned and ground to caliper. Prices range from $6.50 for single cylinder to $10 for six-cylinder type.

* * *

Fig. 8.—Herz Roller Timer.

"Gem" Collapsible Cooker (Fig. 9).—The Outdoor Cooker Co., Rochester, N. Y. Shown herewith is the latest type of cooking table to be developed and offered to motor boatmen by the above company. This cooker is of particular use to those who make extended cruises and camping trips, in that it permits of doing the cooking ashore with convenience and celerity without disturbing the galley equipment in any way. It will be seen that it consists of a frame work for the support of the cooking utensils over the fire, the latter being built as is the regular camp fire for cooking. When folded, its folding or extension can be accomplished in a moment's time, it occupies a space 1½ x 19 inches. Each cooker is shipped in a brown canvas containing case, similar to a tool roll in appearance, except for the greater length and lesser diameter. The price complete with carrying case is $3.

* * *

Fig. 9.—"Gem" Collapsible Cooker.

"Bison" Storage Battery (Fig. 10).—Bison Storage Battery Company, Buffalo, N. Y. The chief feature of these batteries to which the manufacturers call attention is the extreme simplicity of the construction. The fewness of the parts employed makes access to the interior very ready, as well as eliminating

Fig. 10.—"Bison" Storage Battery.

numerous joints which are apt to cause leakage of the electrolyte and thereby foster corrosion of the metal parts. Both the metal and the hard rubber cases of these batteries are protected. The metal case protects the hard rubber jar, and the latter is provided with a soft rubber bandage with a grooved receptacle for the metal case, thus preventing any acid from entering the metal case. The several cells of the hard rubber jar are made exceptionally heavy so that they shall be free from injury in case the battery should be subjected to any sudden jolts or bumps. Contraction and expansion of the plates is taken care of in their construction. The 6-40 and 6-60 batteries list at $16 and $20.

* * *

Fig. 11.—"Nozzle" Gasoline Filter.

"Nozzle" Gasoline Filter (Fig. 11).—S. F. Bowser & Company, Fort Wayne, Ind. This filter is a special construction designed for attachment to the delivery nozzle of gasoline tanks for the purpose of removing all water, dirt and other foreign matter from the fuel before it enters the boat's tank. Such filtering positively precludes the possibility of carbureter trouble or stoppage of the fuel line between the carbureter and the tank which so often occur when impurities are allowed to remain in the fuel. It is usually connected to the outlet of the pump which draws the fuel from the underground or other storage tank. All the water, dirt, etc., is retained in the bottom cup as the fuel passes through and can be very readily drawn off by occasionally opening the drain cock shown for a moment or so.

* * *

Fig. 12.—Electrolyte Tester.

Electrolyte Tester (Fig. 12).—The Storage Battery Supply Co., 239 East 27th St., New York, N. Y. This instrument takes the place of the usual hydrometer, hydrometer jar and syringe and combines in one simple device all the means necessary for properly testing battery acid. As shown, it is self-contained and requires but a tablespoonful of the electrolyte in making a test, and permits of returning the acid to the cell without the removal of the instrument. If the white ball does not float when the battery is fully charged, the acid should be made stronger; if both balls float the acid is too strong and should be diluted with water. If the acid is right, both balls will remain in the center of the tube. Price, $1.50.

* * *

Fig. 13.—Osgood Oiler.

Osgood Oiler (Fig. 13).—J. L. Osgood Lubricator Company, 123-138 Erie County Bank Building, Buffalo, N. Y. The oiler is of the force feed type with individual pumps for each feed. The pumps are of the "valveless" variety. It has continuous sight feeds and has no needles between the intake and sight feed cups. Neither are bleeder or test valves fitted or required. The oil is forced to the bearings or cylinders in any quantity desired through passages that are perfectly free and unobstructed. The regulation of the amounts of the feeds is claimed to be perfect and uniform under all temperature conditions, whether the oil used be thick or thin or even dirty. Each feed has a regulator knob for finger operation which permits of as close a setting as one-tenth of a drop per minute and at the same time makes it possible to deliver the oil in a solid stream. These knobs control the strokes of the several pumps.

* * *

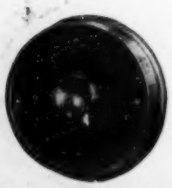


Fig. 14.—Safety Lock Switch.

Safety Lock Switch (Fig. 14).—The Britton & Carleton Manufacturing Company, 311-312 Caxton Building, Cleveland, Ohio. This switch is designed for use in the primary circuits of engine ignition systems for the purpose of affording protection against theft of the boat in the owner's absence. It is very ornamentally finished, is capable of extremely easy installation and is most substantially constructed. The lock cylinder itself operates the switch for making or breaking the circuit, and the key acts as the switch plug. Since the lock and its key are of Yale construction, it is impossible to complete the ignition circuit without inserting the key and turning it to the proper position. Likewise it is impossible to substitute anything else for the regular key. The switches are to be regularly sold for $5 each.

* * *

Fig. 15.—"Wico" Igniter.

"Wico" Igniter (Fig. 15).—Witherbee Igniter Company, 1876 Broadway, New York, N. Y. In this device, which comprises a complete ignition system in itself and is similar in many respects to a standard type magneto, the intensity of the sparks generated is entirely independent of the speed at which it is run. For this reason, the motor does not need "spinning" to get it to start. Also, the engine can be started on the spark, from the seat, the same as with a battery and coil system, provided there is a combustible charge within the cylinders, by simply advancing and retarding the spark control mechanism with considerable rapidity. There is but a single winding of fine wire and no moving wires. Also there is no circuit breaker.

* * *

Leavitt Wipe-Contact Timer (Fig. 16).—Uncas Specialty Company, Norwich, Conn. To meet the demand for an improved wipe-contact timer, this company has made several improvements in the Lacoste type, the result of which is shown in the cut herewith. The chief improvements are embodied in the addition of a supplementary ground terminal and an adjustable ball bearing in place of the plain bearing heretofore used. These features eliminate the two chief faults of this type of timer, i. e., ineffective ground connection and wobbling after a short time in use. Both of these defects cause poor contacts and missing in the several cylinders. The factory is equipped with the most modern machinery and tools for the manufacture of timers, and therefore it is possible to sell these timers at a very reasonable price. These prices are $7, $7.50, $8, $8.50, and $9.50 each for 1, 2, 3, 4 and 6 contact timers, respectively.

* * *

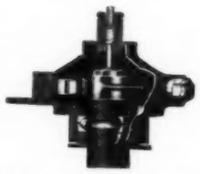


Fig. 16.—Leavitt Wipe Contact Timer.

Fig. 17.—Delco Ignition System.

"Delco" Ignition System (Figs. 17 and 18).—Dayton Electrical Engineering Laboratories Co., Dayton, Ohio. This system consists of three separate units: the coil box which is located near the cylinders and the controlling relay which can be located in any convenient place; and the switch which is located on the bulkhead. The five terminals at the bottom of the coil box are for the battery circuit, the middle one being common. Those at the top are connected directly to the spark plugs. Safety spark gaps will be noted at the top of the coil box. The relay takes the place of the master vibrator and is adjusted to take .15 to .16 ampere. The switch has three positions, off, battery and magneto. With the lever at the "off" a button at the top can be pushed in, converting the relay into a vibrator. The complete outfit lists at $40.

* * *

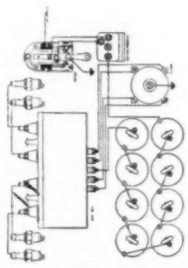


Fig. 18.—Diagram of Delco System.

Palmbla Carbureter, Model D (Fig. 19).—North Chicago Machine Company, North Chicago, Ill. This carbureter is designed without an auxiliary air intake port, all the air for the formation of the mixture entering at the bottom through a single port. This single port can be partially or almost wholly closed for the aspiration of a very rich mixture for starting in cold weather. As shown in the section herewith, a large diameter, non-adjustable spring serves to maintain a constant suction about the nozzle through the control it exercises over the position of the floating annular valve above the nozzle. The action of the float mechanism is positive, the whole buoyancy of the float being utilized to hold the valve upon its seat. It is notable that the fuel is not taken from the bottom of the chamber. Prices range from $11 to $14 for ¾ to 1¼ inch sizes.

* * *

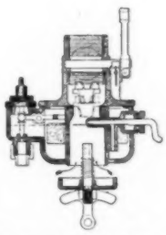


Fig. 19.—Palmbla Carbureter.

Duryea Carbureter (Fig. 20).—Watres Manufacturing Company, 1133 Broadway, New York, N. Y. As will be seen from the cut herewith, this carbureter is of the automatic float feed type with concentric float and mixing chambers. Fuel enters at the side and after passing through a gauze strainer enters the chamber through the float valve. A large valve controls the auxiliary air passage through the amount of its lift. The chief feature is the manner in which an increasing lift of the air valve is made to increase the extent of the opening of the nozzle. Price is $25 in all pipe sizes.

* * *

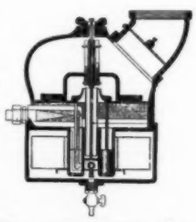
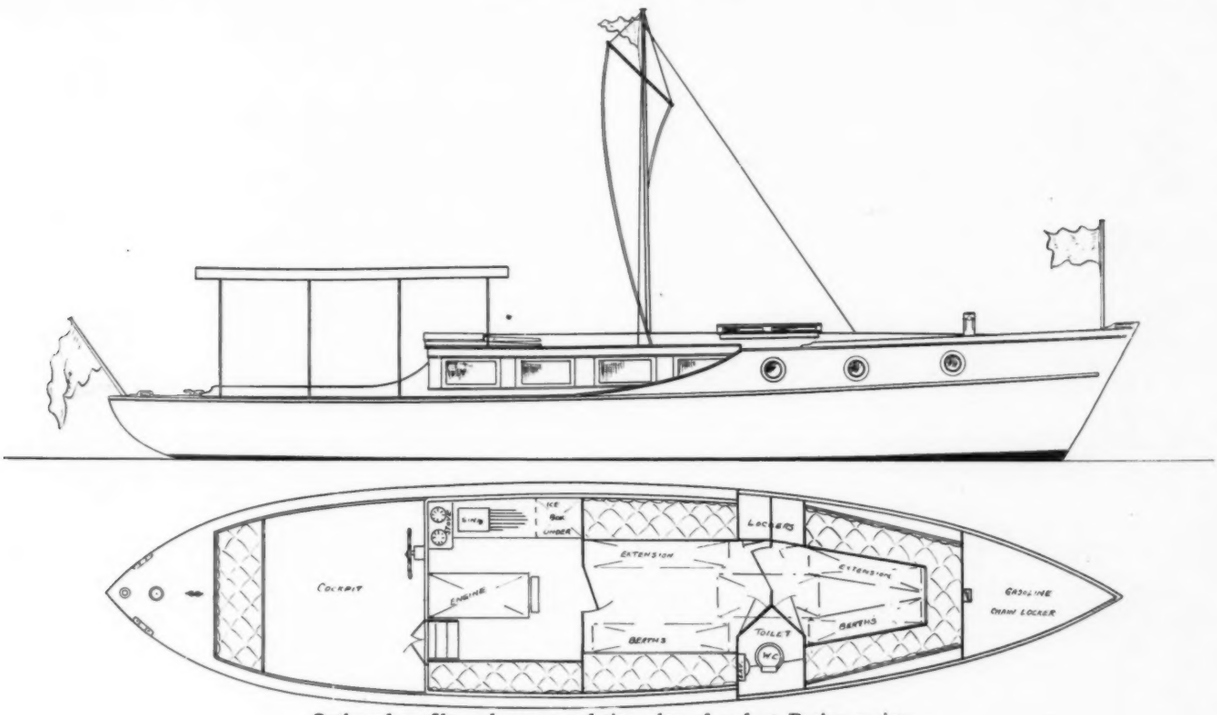


Fig. 20.—Duryea Carbureter.

"Fastnut" (Fig. 21).—S. Hoffnung & Co., 116 Broad St., New York City. This lock washer which is just now being placed on the American market is an English production. The construction is well shown in the cut. To use drop the "Fastnut" over the bolt, teeth downwards, instead of the ordinary washer, and screw up nut. The action of screwing up the nut flattens the teeth and holds the washer to the bolt, and the spring flanges on top allow nut to be turned but prevent slacking back. There is no necessity to screw nut up unduly tight. In releasing, the washer is prised up sufficiently to release the teeth when the bolt can be removed. The device is made for all sizes of bolts and sells for from $1.60 a gross upward.

Fig. 21.—"Fastnut" Lock Washer.



Outboard profile and accommodation plan of 43-foot Racine cruiser.

A Forty-Three Foot Cruiser.

THE above cut illustrates a beautiful launch just designed and built by the Racine Boat Mfg. Company of Muskegon, Michigan. As shown on the cut, she is 43 feet over all, 10 feet beam and 3 feet draft.

Her keel, frames, timbers, stem and stern posts, floor timbers, deck and roof beams, as well as garboard and sheer strakes are all of clear white oak. Planking is of clear Louisiana red cypress, all screw fastened to the frames. The cabin trunk as well as the cockpit sides and transom are of solid mahogany. The cabin roof is of beaded and matched cypress, covered with 10 oz. duck, which is cemented to the cypress roof.

The interior of the boat, as shown in the cut, is divided into engine room, amidship state-room and forward state-room, and between the two state-rooms is located on the port side a full set of lockers and on the starboard side the toilet room. The toilet room is so arranged and provided with a pair of doors that access may be had to it from either state-room.

The entire interior of the boat, with the exception of the engine room, is finished in solid mahogany, the engine room being finished in green enamel with mahogany sash, doors and trimmings. The forward state-room is finished on either side with locker seats, also a locker seat across the forward end, and side seats fitted with extensions so that when cushion backs are laid on the same, they form berths, all of the upholstering being in green corduroy.

A skylight is so fitted on the forward deck that half of the skylight gives light and ventilation to the forward saloon and the other half to the after saloon.

The amidships state-room is fitted on either side with locker seats, the upholstering being in green corduroy, the same as the forward state-room. The engine room, as above mentioned, is finished in green enamel with mahogany trimmings, entrance being had from the cockpit through a mahogany sliding hatch with double mahogany doors. One side of the engine room is fitted with upholstered settees with extensions to form berths, these seats being fitted with pantasote cushions. The other side is fitted with the galley, containing complete equipment, including stove, ice-box, sink, dish rack and cupboards.

The gasoline tank is fitted in the bow of the boat, over which is built a substantial chain locker, the capacity of the gasoline tank being 100 gallons.

The cockpit floor is laid with cypress in narrow strips, all blind fastened and calked, and the seams filled with seam cement; the after end of the cockpit containing a locker settee fitted with pantasote cushions and backs. A substantial awning is fitted over the cockpit and supported upon a frame work of brass pipe.

The outfit is equipped with a 40 h.p., four-cylinder, four-cycle motor, giving her a speed of approximately 12 miles per hour. She is complete in every detail, being completely fitted out with blue curtains over all the windows and port lights; floors of the state-rooms being fitted with velvet Brussels carpet and those of the toilet room, engine room and galley being covered with linoleum.

The motor boat tender, a necessity in yacht racing today.

A string of 19 lighters towed against a 3 mile current on Shanganola River, Panama, by a motor tug equipped with a 27 h.p. Wolverine motor. They are used on a banana plantation.

New Motor Boat Owners.

Alaska

DOUGLAS—Abner Murray.
FAIRBANKS—F. H. Lewis.
JUNEAU—Leroy Hanford
FORT EGBERT—Avery F. Hightower.
SOLOMON—O. H. Flowers.

California

CROCKETT—T. Elias.
LOS ANGELES—J. B. Burnham.
SACRAMENTO—Oscar Herold, Herman Koch, Ernest Brainard, Arthur Brown, Dr. M. S. Silva, Robert Logue, William Woodling, Michael Kelly, Frank Hanson, Frank Danielson.
SAN DIEGO—F. C. Spaulding, J. G. Merril.
SAN FRANCISCO—Harry L. Horn, Col. F. H. Johnson.
VALLEJO—J. S. Slate.

Connecticut

BRIDGEPORT—Miss Irene Franklin.
EAST NORWALK—Horace A. Keyworth.
SOUTH NORWALK—Jesse Ayres.
WINDSOR—Elliott H. Andrus

Delaware

WILMINGTON—E. E. Avery, E. Bell.

Florida

JACKSONVILLE—W. W. Toomer, J. H. Borden.

Illinois

HARVEY—Burton Johnson, C. S. Bending.
HAVANA—William Shaffer.
PEORIA—D. W. Vorhees.

Indiana

ANDERSON—John McGriff, James Hall.

Iowa

DAVENPORT—Axel H. Kohler, Axel Christopher, F. L. Bills.
MUSCATINE.—William Jordan.

Louisiana

NEW ORLEANS—L. C. Fallon, Captain Albert Mackie, Jr., S. F. Heaslip, John Soria.

Maine

BANGOR—William Sparrow.
BAR HARBOR—William F. Cochran, Alessandro Fabbri.
BATH.—Dr. Harold Bibber.
BOOTHBAY—H. D. Maxwell.
KENNEBUNKPORT—E. H. Perkins.
MILO—F. W. Ball.
WATERVILLE.—Hon. Charles F. Johnson.
WESTBROOK—James Parker.

Massachusetts

BEVERLY—J. B. Menke (Central Street).
BRAINTREE—Clifford Fox.
COHASSET—Captain Manuel E. Salvador.
NEW BEDFORD—Dr. J. L. Hennessey.
PLYMOUTH—S. J. Lawlor.
SOMERSET—Fred Staples.
SOUTHBRIDGE—William Eccleston.

Michigan

CALUMET—Charles Rowe.
GRAND RAPIDS—Chester Orr.
PETROSKEY—George Van Ness.

Minnesota

DULUTH—E. F. McCausland.

Mississippi

GULFPORT.—J. W. Power.

New Hampshire

LACONIA.—George D. Maynard.

New Jersey

CAMDEN—Elmer Pitman.
NEWARK—F. J. Melius.
PATERSON—Donald Cook.

New York

AUBURN—Fred Wildner.
BALDWIN, L. I.—M. E. Le Pine.
BINGHAMTON—Wm. Bordman.
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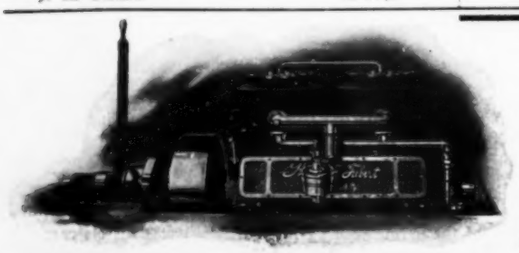

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Your money back if you are not satisfied in *every* respect. You'll find no weak parts or excessive gearing. All parts are easily accessible and not a moving part is exposed. My engines are DURABLE, RELIABLE, ECONOMICAL, and FREE FROM VIBRATION.

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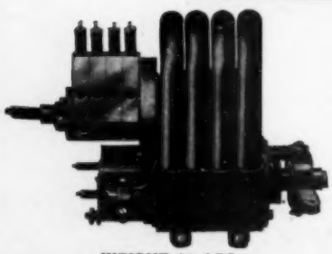

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will generate a large spark firing charges positively when cranked or running at a low speed.

At 50 R. P. M. will produce a 3/8" spark.

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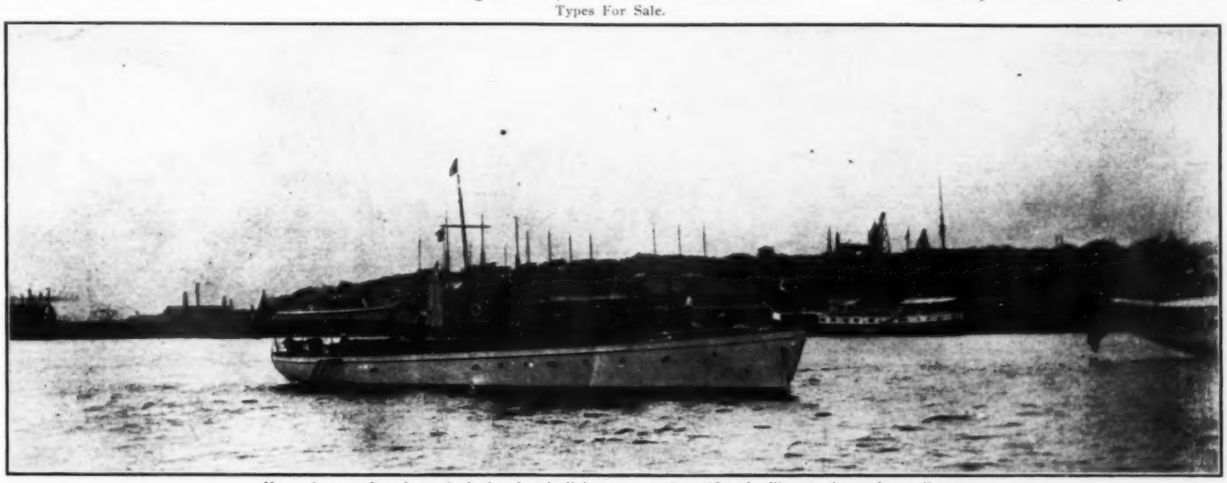
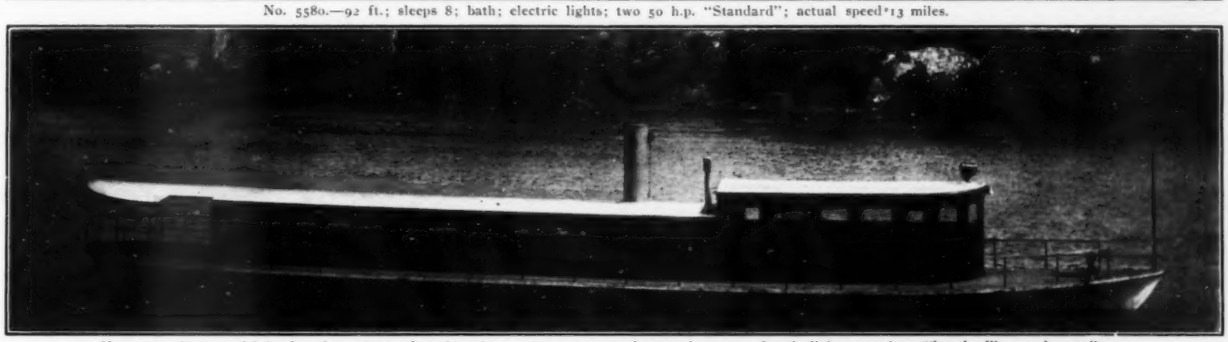
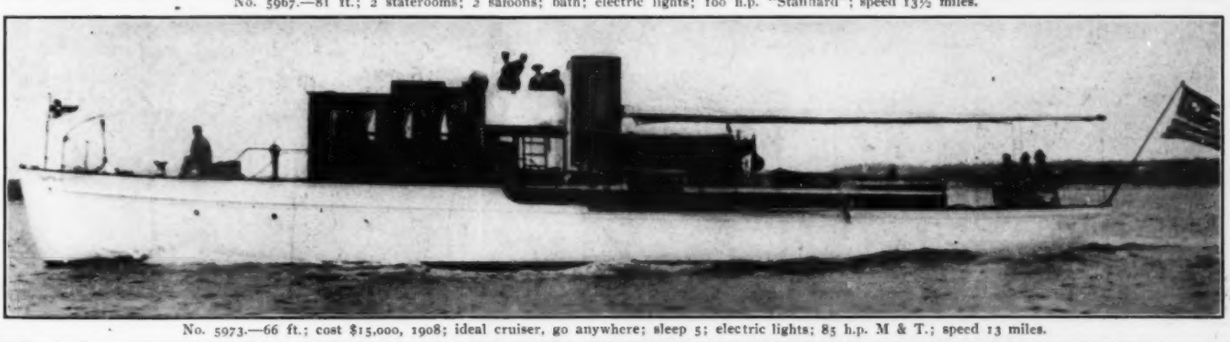


No. 5580.—92 ft.; sleeps 8; bath; electric lights; two 50 h.p. "Standard"; actual speed 13 miles.



No. 5974.—New steel inland cruiser, 86 ft.; draught 2 ft.; 3 staterooms; 2 saloons; sleeps 12; electric lights; 125 h.p. "Standard"; speed 15 miles.

No. 5967.—81 ft.; 2 staterooms; 2 saloons; bath; electric lights; 100 h.p. "Standard"; speed 13½ miles.



No. 5973.—66 ft.; cost $15,000, 1908; ideal cruiser, go anywhere; sleep 5; electric lights; 85 h.p. M & T.; speed 13 miles.

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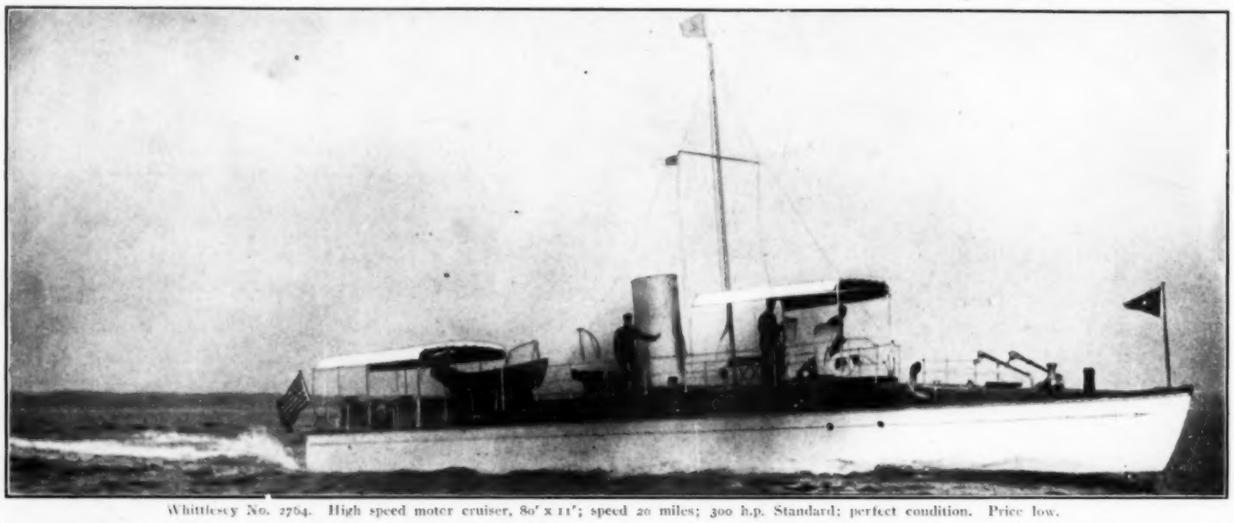
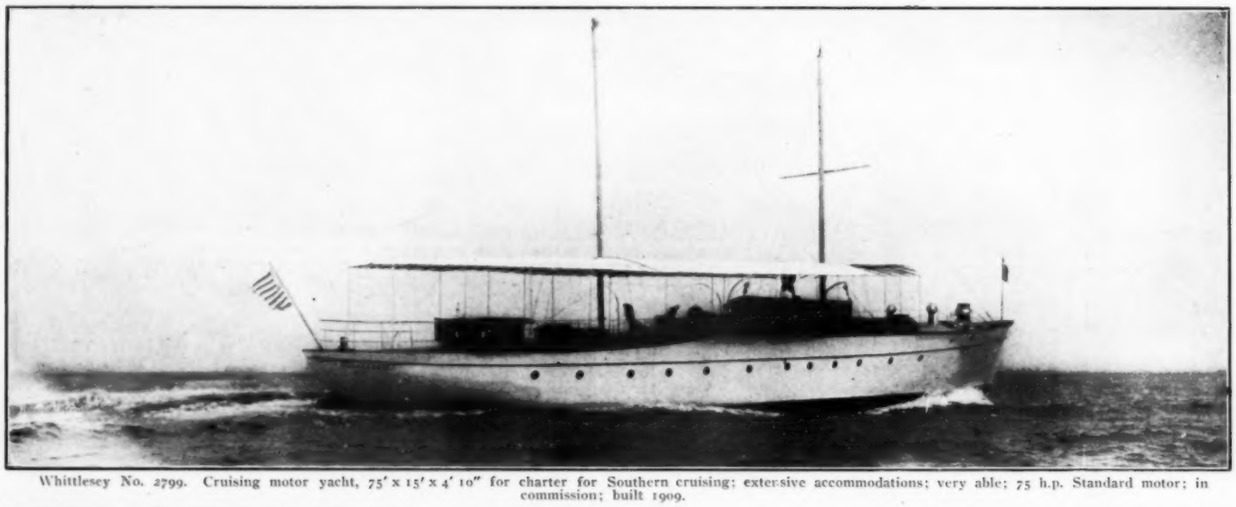
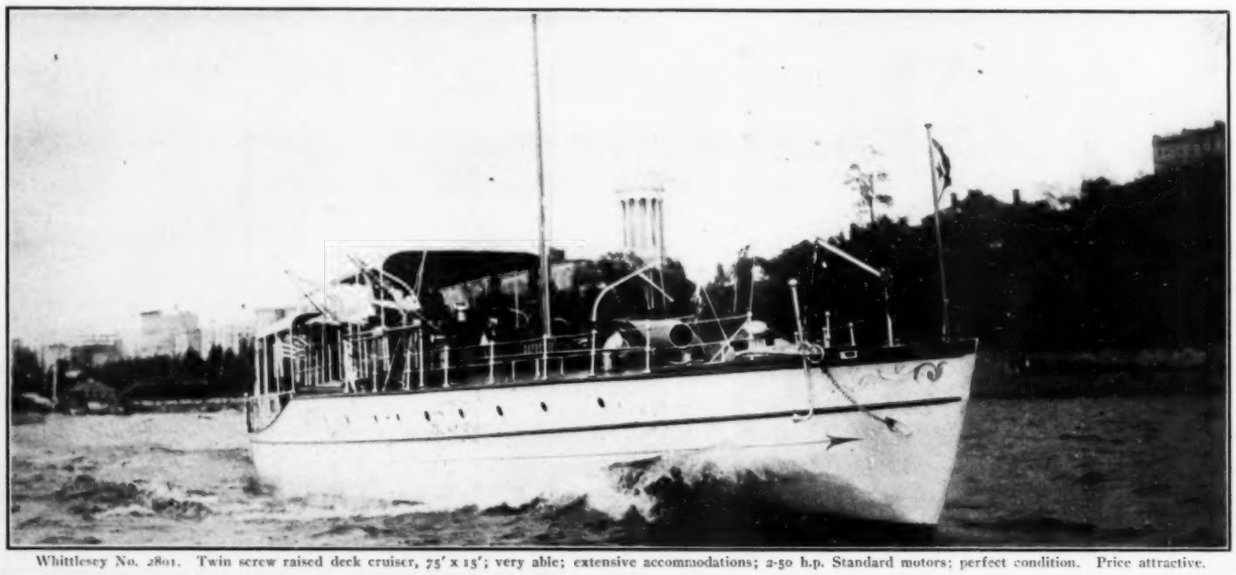


Whittlesey No. 2764. High speed motor cruiser, 80′ x 11′; speed 20 miles; 300 h.p. Standard; perfect condition. Price low.



Whittlesey No. 2799. Cruising motor yacht, 75′ x 15′ x 4′ 10″ for charter for Southern cruising; extensive accommodations; very able; 75 h.p. Standard motor; in commission; built 1909.



Whittlesey No. 2801. Twin screw raised deck cruiser, 75′ x 15′; very able; extensive accommodations; 2-50 h.p. Standard motors; perfect condition. Price attractive.

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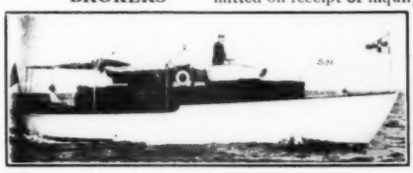
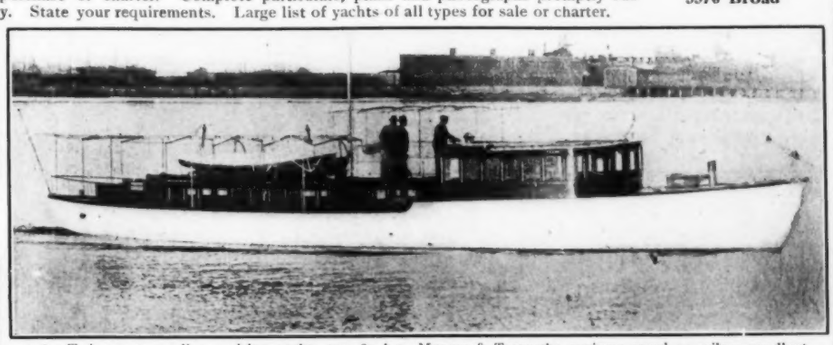
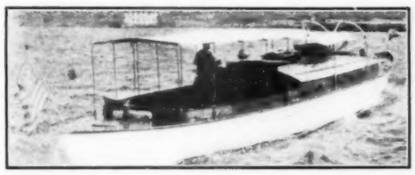


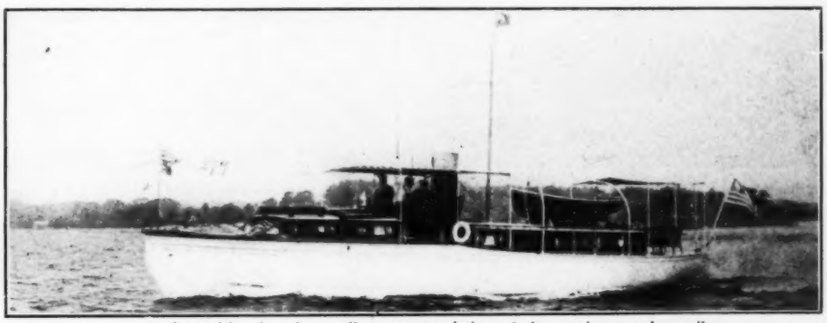
501.—45 ft. cruising launch; sleeps six; 30 h.p. Murray & Tregurtha engine.



546.—Twin-screw gasoline cruising yacht; two 80 h.p. Murray & Tregurtha engines; speed 14 miles; excellent accommodations.



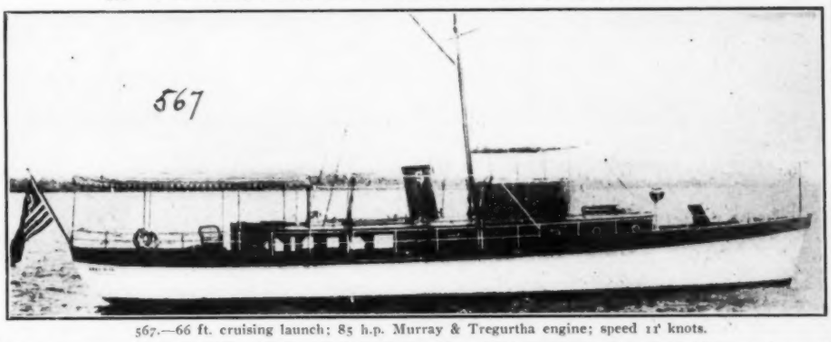
388.—62 ft. twin-screw cruising launch; equipped with Craig engine; speed 12 to 14 miles.



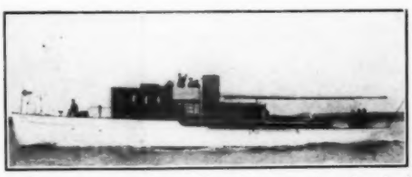
579.—60 ft. cruising launch; excellent accommodations; 60 h.p. engine; speed 12 miles.

505.—40 ft. cruising launch, equipped with 24 h.p. Jaeger; speed 11 miles.

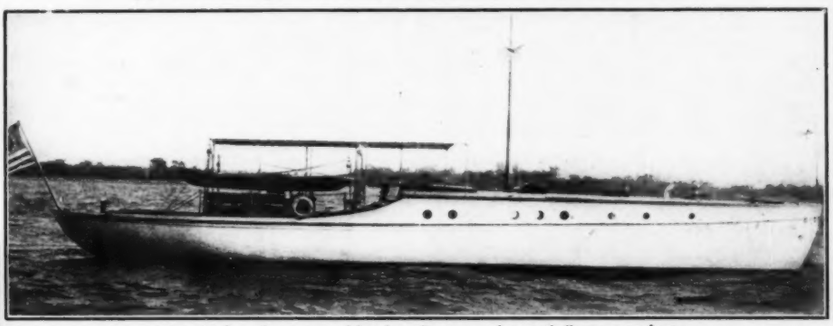
551.—42 ft. cruising launch; sleeps six; 30 h.p. engine; speed 10 miles.



567.—66 ft. cruising launch; 85 h.p. Murray & Tregurtha engine; speed 11 knots.

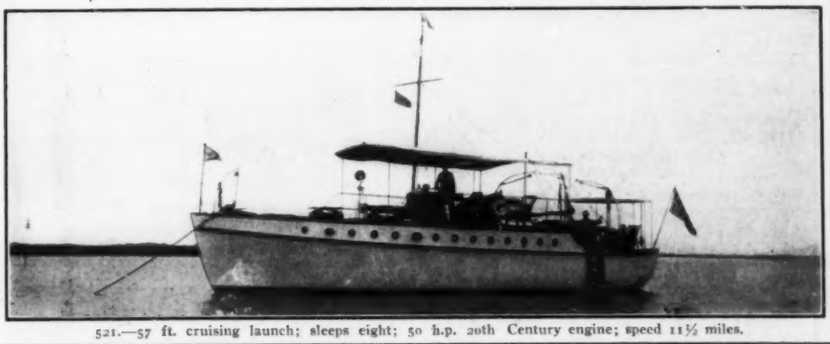


464.—80 ft. cruising motor yacht; 100 h.p. Standard engine; speed 14 miles.

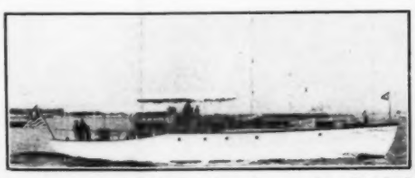


401.—64 ft. twin-screw cruising launch; two 20 h.p. 20th Century engines.

429(a).—68 ft. cruising launch; sleeps six; 50 h.p. Standards; speed 12 miles.



521.—57 ft. cruising launch; sleeps eight; 50 h.p. 20th Century engine; speed 11½ miles.



1000.—65 ft. raised deck cruiser; 25 h.p. Standard engine; speed 11 miles.

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SACRIFICE 26-foot runabout, auto top—twelve miles; complete equipment; cost over $800.00; one season's use. Will sacrifice for $450.00. Perfect condition. Send for detailed description. Launch Exchange, Menasha, Wisconsin. (Signed) The Brighton Boat & Supplies Co.

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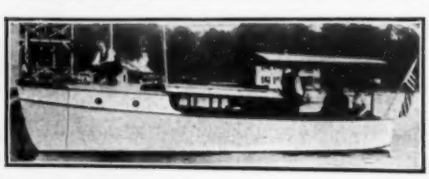
FOR SALE—No. 1513.—Owner has steam yacht. Exceptionally handsome mahogany hull motor yacht. 65 feet over all, 62 feet waterline, 10 feet beam, 3 feet draught. Speed 12 to 13½ miles. Built by well-known firm in 1905. Double planked, cedar and mahogany; copper fastened. Three steel bulkheads. Raking bow, Normand torpedo type stern. Two low steel cabin trunks with flush deck. Interior finish mahogany, butternut and white. Forward and after cabins each sleep two, with toilet room for each. Crew's accommodations in engine room amidships, and in forecastle. Galley located between engine room and after cabin. Ample water and gasoline capacity. 90 horse-power six cylinder, four cycle gasoline engine, installed 1907. Cedar tender on davits, acetylene lights, anchors and cables. Large after deck and good sized deck amidships. Decks are white pine. Rails of mahogany. Gasoline tank is under after deck, set in drip pan with drain outboard and separated from after cabin by bulkhead. Feed from tank to engine is outside of hull. Brass binnacle, steering wheel, engine telegraph, searchlight, deck fittings, etc. Everything in excellent condition. In fact, a most attractive boat throughout, for which an offer is desired. Located New York. Trial run can probably be given. Apply to Henry J. Gielow, 52 Broadway, N. Y.



FOR SALE—30 foot cruiser, built at Tarrytown Boat Works; mahogany cabin and toilet room; upholstered cushions; sleeps five; full equipment; 15 horse, three cylinder; Van Epps motor; actual speed guaranteed ten miles; photographs and plans on application; one of this design boat won three prize cups last summer; a comfortable, roomy, steady boat. Can be seen in New York. Address Tarrytown Boat Works, Tarrytown, N. Y.

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ADDRESS CASH PURCHASER, 701 NIGHT AND DAY BANK BLDG., NEW YORK CITY.

Prize Contest in Questions and Answers.

(*Continued from page 34*).

and then another in your search for the source of trouble. If you alter the coil adjustment and no good result follows, be sure to put it back to its former condition before you go "tinkering" with something else. By observing that simple rule you will be able to trace the precise cause of the trouble infallibly in the long run, while on the other hand if you leave adjustments changed you may have an endless job ahead of you and even if you do get the motor a-working you do not know positively what did the business.

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First Look to the Ignition.

WITH the engines of the make and break ignition type, note position of switch, then proceed at once to place a screw driver blade on the outer terminal of your stationary igniter electrode, sliding it across to touch the movable electrode, then drawing it back quickly, noting the spark formed. If a bright snappy spark results, the ignition circuit is O. K. Should no spark appear or a very faint one (on a single cylinder engine) examine the battery for loose or disconnected terminals. Repeat screw-driver test, as above. Absence of spark now means short circuit in an igniter, so press the movable electrode into position where points should touch, releasing it slowly and making sure that contact of points is broken. If electrode sticks give it oil and readjust it. In a multiple cylinder engine, one good spark on any igniter shows the current all right. Now glance at the carbureter and, having spark and throttle levers in starting position, crank the engine. With two or three failures to start, stop and save your strength and hard feelings.

Next examine the gasoline supply by drawing from the carbureter drain cock into your priming cup, or by removing the cap from above the needle valve (should you have such a cap), and lifting the needle valve, noting the flow of gasoline. With an empty gasoline tank there can be but one remedy.

With jump spark ignition engines, note the starting position of your switch as before, then turn engine over slowly listening for the familiar sound of each coil vibrator. Should these show weakness or fail to sound, turn engine to firing position for that coil and adjust vibrator until proper vibrations occur. No vibrations in either coil probably indicates battery trouble, so apply test on terminals.

If at this point failure awaits you, throw spark control lever to early, then remove secondary wire terminal and holding this by the insulated covering only 1-16 in. from plug terminal, throw spark lever to complete the circuit. This will show spark crossing the gap and indicating that plug is O. K. A better test will be to remove plug from cylinder and resting the outer surface against some bare spot on engine, throw lever to give spark. Any oil or water across the terminals of plug can be removed and points may be bent to give a gap somewhat less than 1-16 in. Remember, after you fix up any vital defect to attempt to start the engine, but don't keep cranking if it fails to go. Apply the gasoline supply test at this stage.

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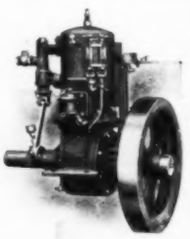

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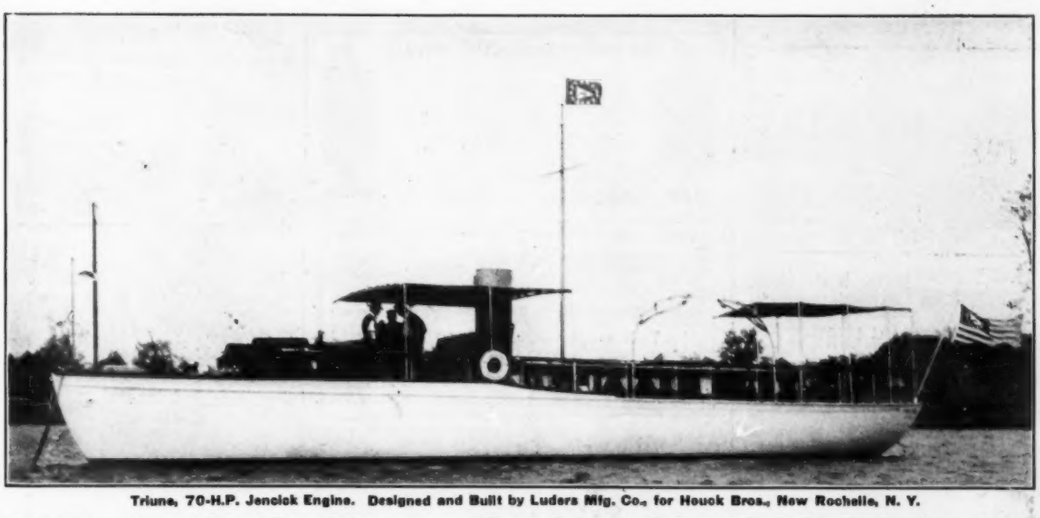

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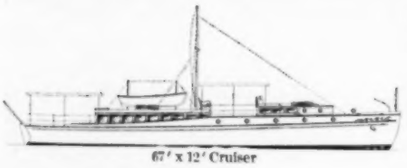

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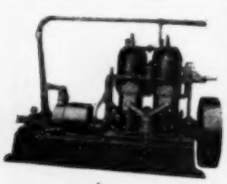

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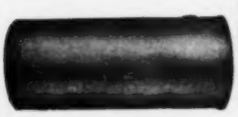

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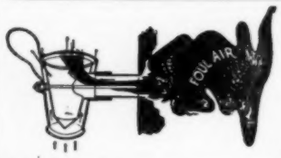

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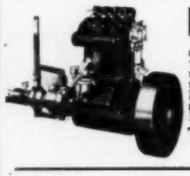

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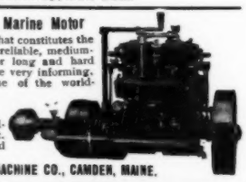

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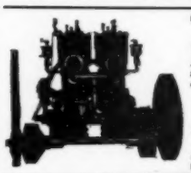

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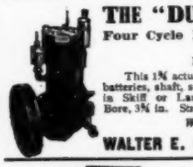

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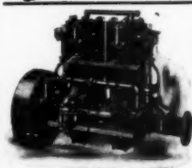

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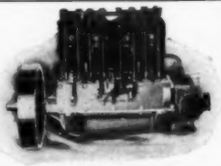

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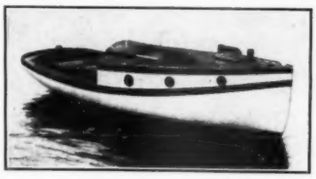

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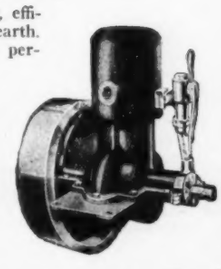

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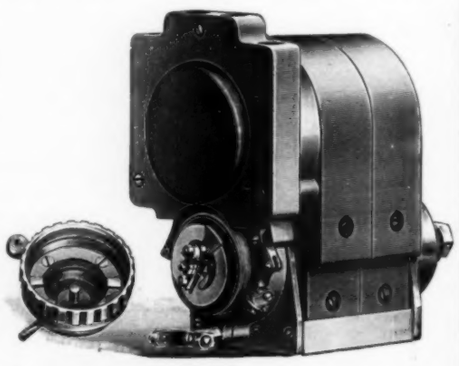
The Dow perfected is equal, we go further and say SUPERIOR—to any other Magneto, Foreign or American.



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We cannot, in the small compass of this advertisement, tell all the points in which the Dow has proven itself the mechanical and electrical superior of all others. You should know them.

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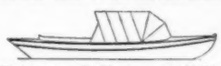
SPRAY  **HOODS**

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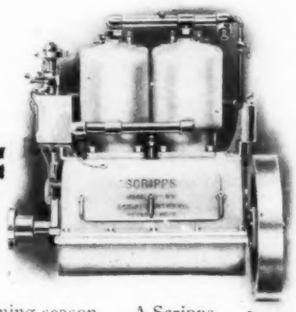

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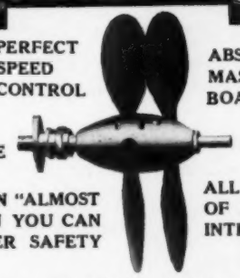

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DEPENDABLE
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Absolute and Instantaneous Control of the Progress of your boat, Perfect Mastery of the Speed in Either Direction, Absolute Freedom from Engine Racing, Relief from Throttle and Spark Adjustment once the motor has been started,

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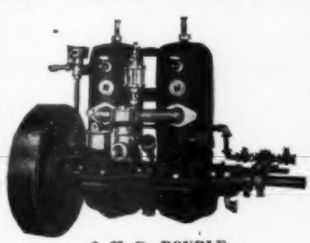

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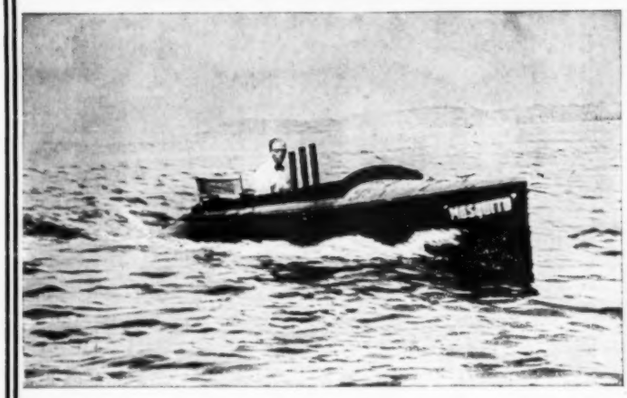

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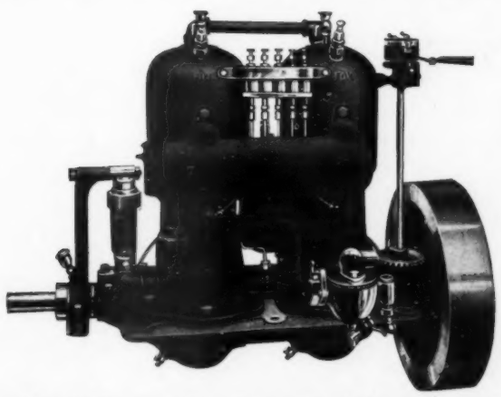

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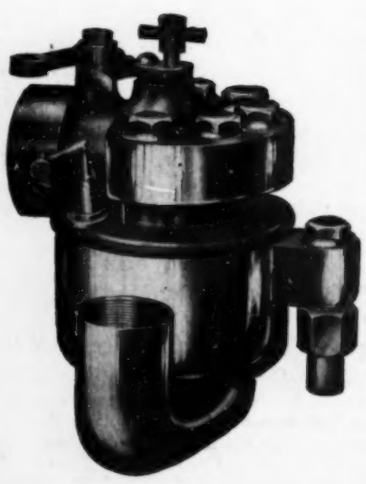

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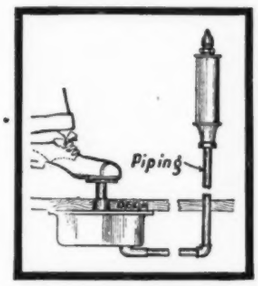

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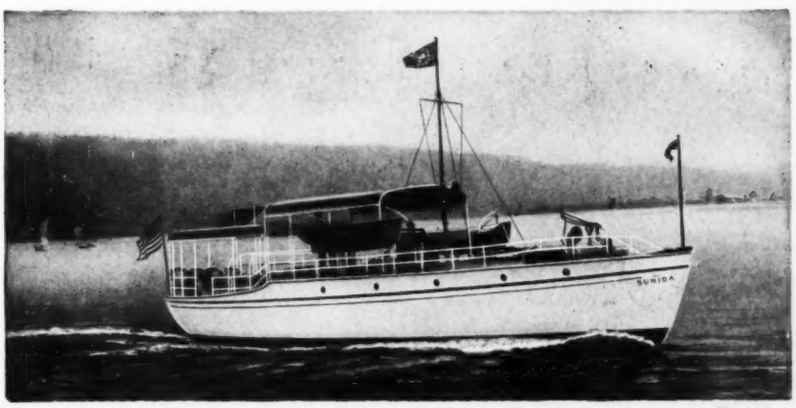

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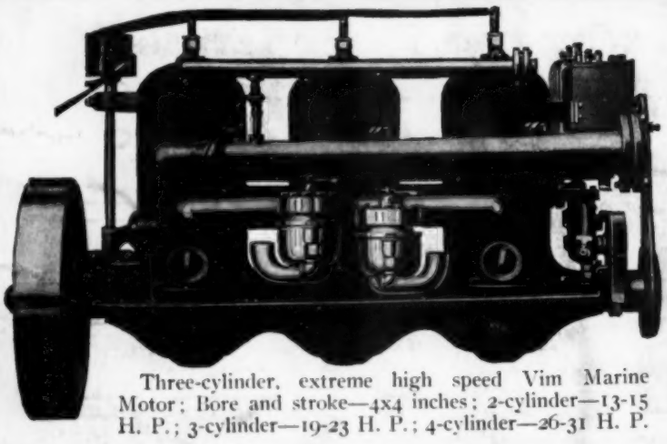

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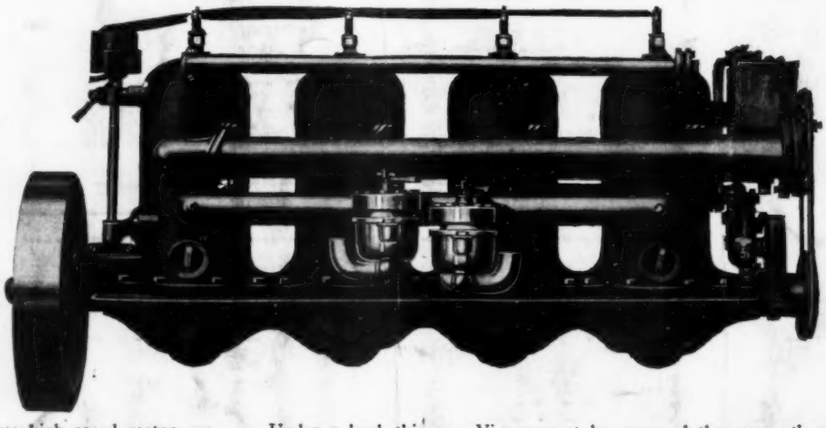

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